January 1961

Chatham classifies maintenance

Wash-and-wear—what's ahead?

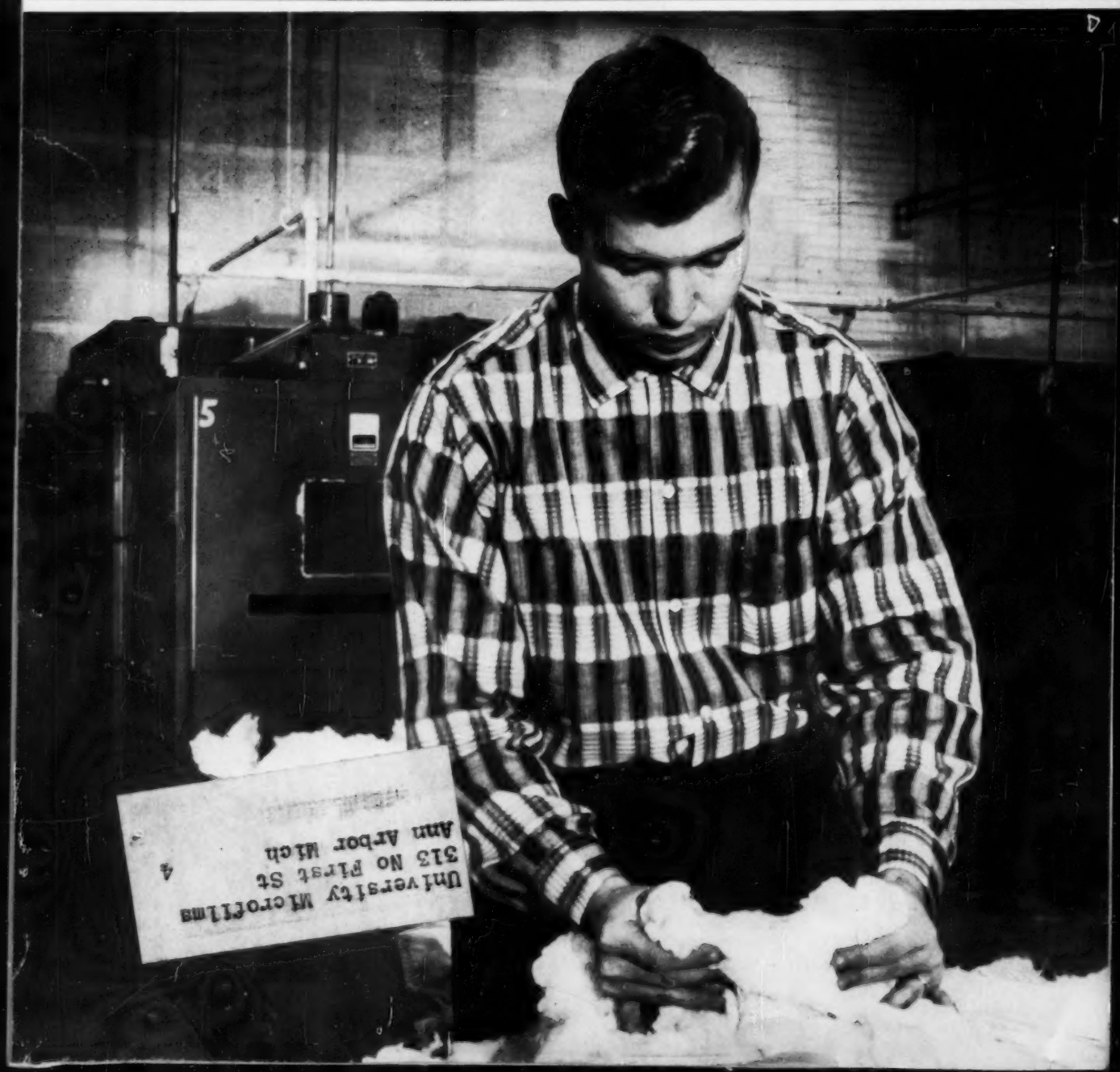
Latest textile research results

F-F cost low, quality high

Complete contents on page 4

Textile Industries

a W. R. C. Smith publication formerly "Cotton" fifty cents per copy



True yarn spinning began with DIEHL* motors

DIEHL'S engineering service is as much a part of their tradition of quality as are the superior power transmitters they design and build to meet your particular needs.

So remember, be it Spinning, Weaving or Roving when you designate DIEHL, 75 years of experience are working for you.

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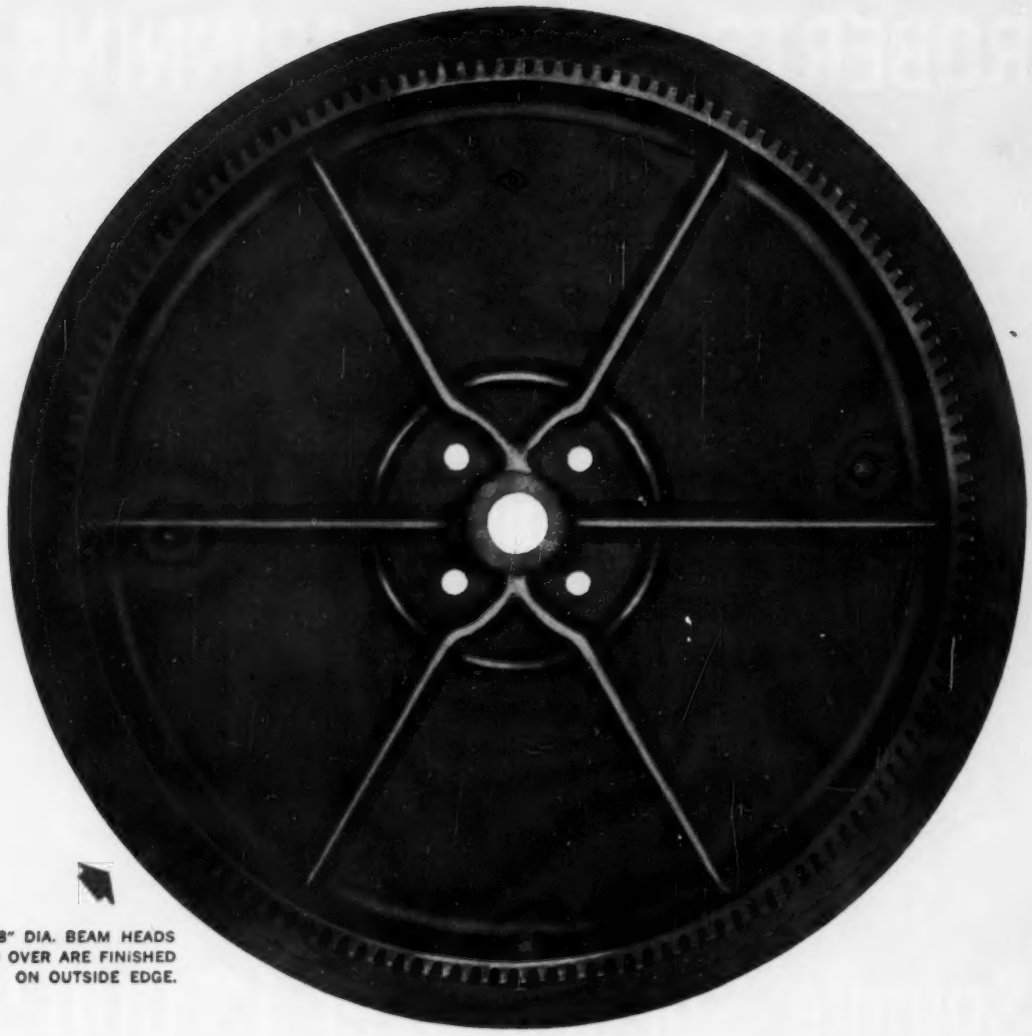
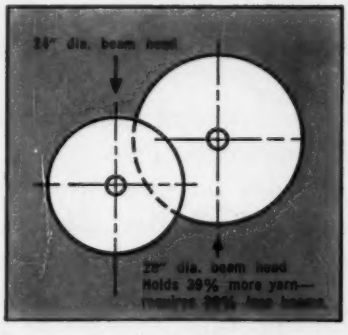


28" DIA. BEAM HEADS AND OVER ARE FINISHED ON OUTSIDE EDGE.

GREATER MILL SAVINGS POSSIBLE WITH LARGER LOOM BEAM HEADS



Insure these savings by specifying Draper Beam Heads. Made from laboratory-controlled materials, with accurate foundry casting and precision machining, top quality Draper Beam Heads protect your changeover investment. Your Draper representative will be glad to investigate the savings you can realize through replacing with larger beam heads.

DRAPER CORPORATION

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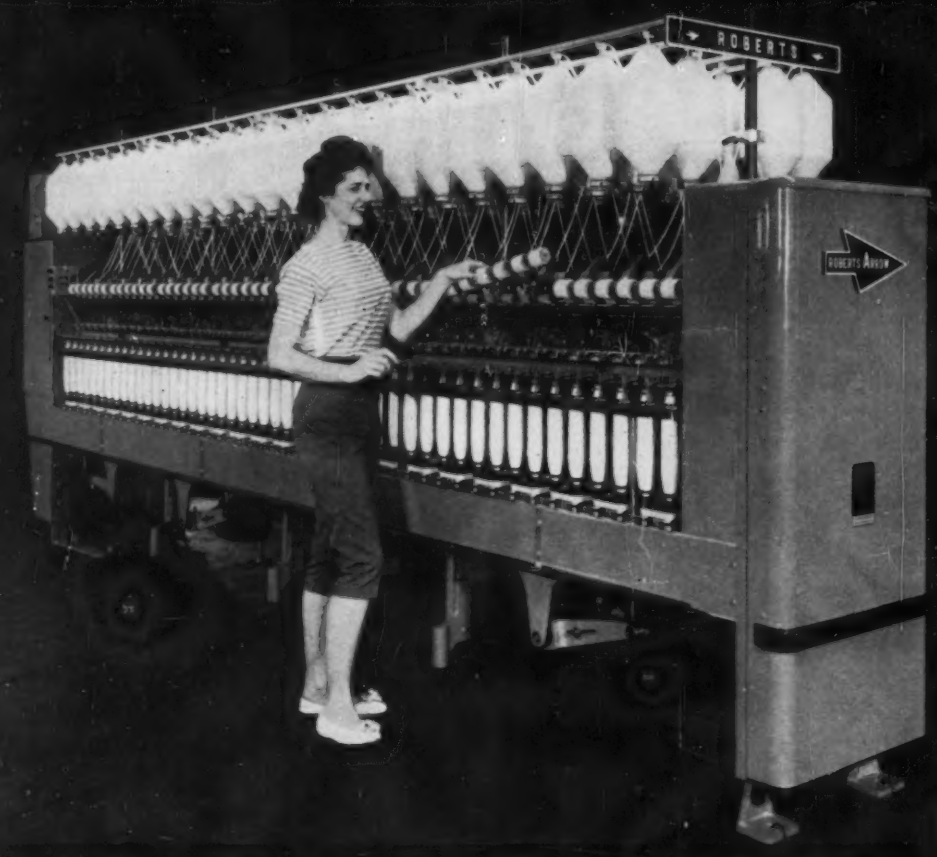
ROBERTS ARROW SPINNING



Spindle Speeds Over 13,000!

One of the most frequent questions asked today concerns high spindle speeds. The answer comes from many of the 850 Roberts Arrow Spinning Frames running in leading mills since 1956. Three examples are shown at the right.

The new and refined Arrow compares advantageously with all other all-ball-bearing frames and greatly outperforms all conventional and standard-type spinning frames. The Arrow offers the greatest dollar-for-dollar-value against any other make of frame in dependable performance, lowest initial cost, and maintenance-free operation.

Arrow Spinning is available for either the cotton or the worsted system for natural or man-made fibers or blends.

3 MILLS RUNNING ARROW FRAMES AT 12,300 to 13,200 R.P.M.

- A major sheet manufacturer runs 36's warp yarn with 2" ring at 12,300 r.p.m. spindle speed on 44 Arrow frames.
- A major manufacturer of Dacron-cotton fabrics runs 50's on 66 Arrow frames with a 1-7/8" ring at 13,200 r.p.m. spindle speed.
- A major broadcloth manufacturer using 96 Arrow frames makes 40's with a 1-13/16" ring at 12,800 r.p.m. spindle speed.

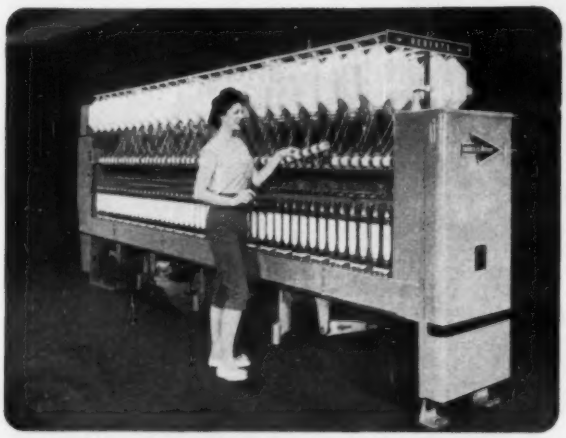
ROBERTS COMPANY
SANFORD, NORTH CAROLINA

For further information use Handy Return Card, Page 121

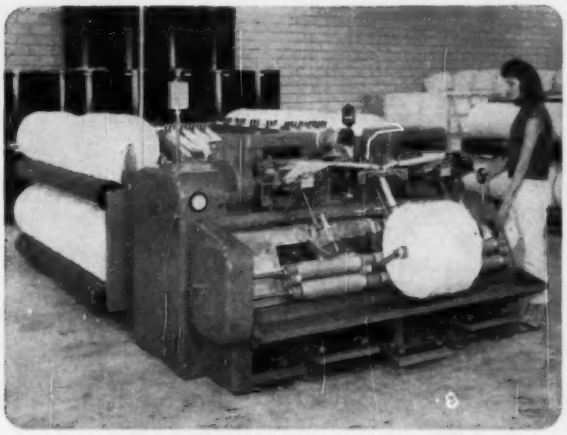
YARN MAKING MACHINERY

ROBERTS NEWS

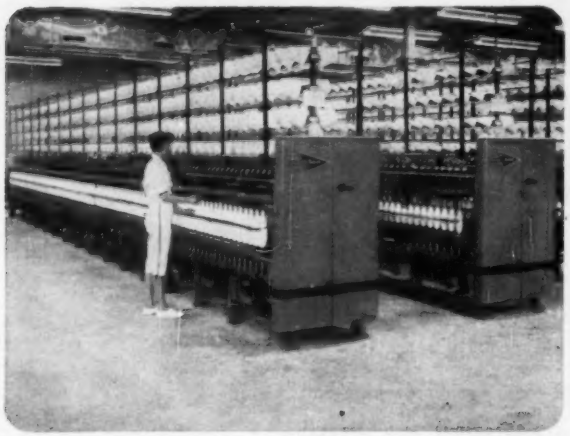
COTTON, WORSTED OR LONG FIBER SYSTEMS



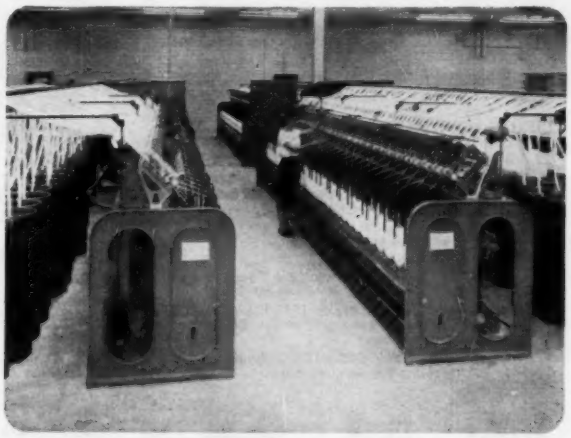
ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 3½-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ¾ to 1 pound on worsted.



ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

Simplicity of design, rugged construction and high speed ball bearing operation are the trade marks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization change-overs for mills' existing machinery.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

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Textile Industries

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MANAGEMENT

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94 What pediatricians want in children's socks

January 1961

Volume 125
Number 1

Engineering Journal

◄ THIS MONTH'S COVER

This is Dwight Carlisle, assistant superintendent of the Russco Mill of Russell Manufacturing Co., Alexander City, Ala., whose opening room is considered to be one of the most modern in Alabama. Along with other textile mill operating executives, he went to Auburn recently to discuss cotton-mill problems. For what they had to say, see the staff report beginning on page 62.

COTTON AND MAN-MADE FIBERS

52 How you can engineer for fabric strength
The effect of yarn properties and fabric structure on fabric breaking strength.

55 Link-type parallel motions
Weaving topics discussed by Georgia mill men also included humidity control, loom-wound filling, new-type shuttle check, plastic loop pickers, XD-type pick cams.

57 How a premium yarn mill spins Acrilan
Nylon and Orlon staple are also processed on cotton-type machinery.

62 Metallic clothing and blending
were discussed by Alabama Textile Operating Executives.

72 Clean air cuts rejects 30%
That's how much Bloomsburg Mills' rejection rate on loom-finished goods was cut by electronic air cleaners.

75 Cotton crop and cardroom
On the agenda at meeting of Eastern Carolina Div., STA.

83 Spinners swap tips
North Carolina and Virginia mill men covered automatic cleaning, roll picking, creeling, and training spinners.

51 How window replacement helped denim manufacturer

86 Quick method for counting neps

WOOL

69 Wool men probe carding and combing
National Association of Woolen and Worsted Overseers raised these points: Is card overhauling necessary? What about quality and fiber length control in tops?

61 Resin treating wool fabrics

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IN TI NEXT MONTH

Purchasing

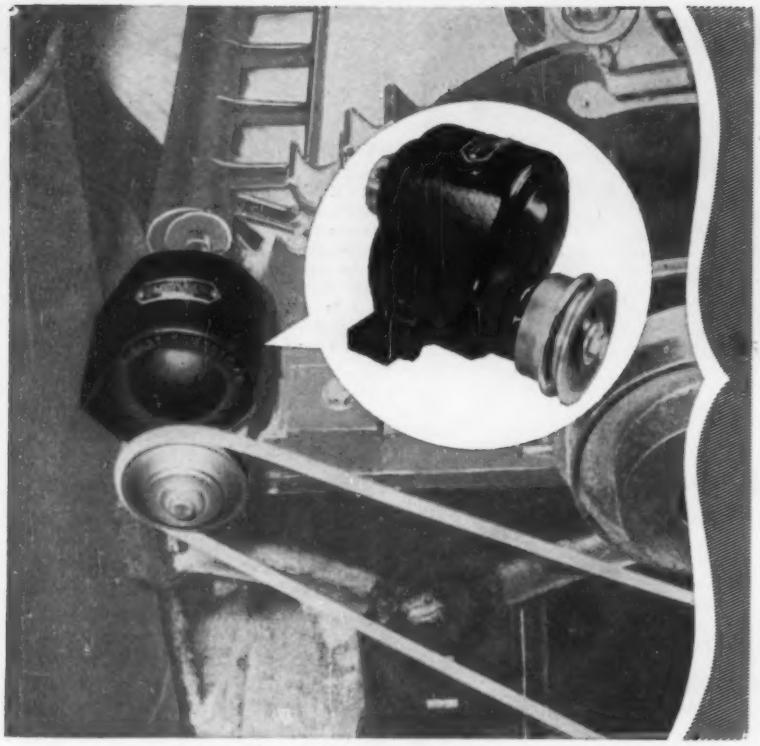
■ Featured in TEXTILE INDUSTRIES for February will be five articles on purchasing for the textile industry. Of particular interest will be a discussion by E. R. Naugle, general purchasing agent for American Thread Co., on how ATCO's purchasing office cooperated with other departments of the company to increase production efficiency. The young lady in the picture below is operating a thread-packaging machine which is

a specific case he'll describe.

Other articles will go into the often-neglected problem of what to look for in purchasing roving cans, and still another will throw some light on the pros and cons of leasing vs buying trucks by textile mills. And finally, in two companion articles, a dyer and a dye salesman paint candid portraits of each other.

And also . . .

■ For wet-processing men, TI for February will present, for example, a look at the differences of opinion on the best way to prepare cotton goods; for the wool man there'll be an article on warp tension in woolen and worsted weaving; for the cotton-mill man, details on how to add cleaning to the SRRL opener; and a varied diet for all segments of the industry.



OUTSTANDING SUPERIORITY OF SOUTHERN STATES COMB BOXES PROVED IN NATION'S MILLS

More than 55,000 Southern States Comb Boxes have been placed in service during the past 12 years—equal to 62% of all the nation's cotton cards. Many mills have changed over 100%.

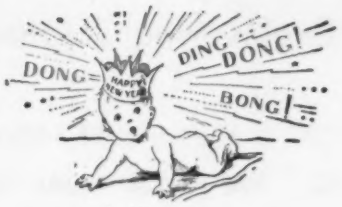
This overwhelming acceptance proves conclusively that mills can easily justify the small investment. Cardroom overseers quickly recognize the savings that result from their use: no oiling, cleaning or maintenance for the life of the unit; steady, even strokes to drive the comb with perfection; elimination of hot-running, leaky, rattling old-style boxes and their headaches.

Southern States Comb Boxes are furnished complete with an adjuster base for mounting on any make of cotton card. Bases are double tapped to permit rapid mounting on either right or left hand cards. Installation is quick and easy.

Let us show you with facts and figures how it has paid hundreds of mills to install Southern States ball-bearing, sealed-for-life, Comb Boxes; prove how much they will save you in one year. Write direct for a representative to call at your convenience.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

SHORTS & REMNANTS



Problems, Problems

As if he didn't have enough to keep his mind busy, what with the Cold War, Cuba, the Congo, inflation, deflation, recession, and so on, we hear that President-Elect Kennedy isn't sure what he'll wear for the inauguration later this month. But we understand it'll be top hat, white tie, and tails, if Ike is willing. Mr. Kennedy has other textile troubles, too, besides the problem of what to do about imports: The International Association of Clothing Designers wants him to abandon his British apparel for made-in-U.S.A. clothing, and the Hat Foundation has taken off after him for his perennial hatlessness.

S & R Sold Clipping Book

"My sincere thanks and appreciation of your efforts on my behalf relative to the disposal of the five books of press clippings of articles which I have had published on terry fabrics.

"The 'Shorts and Remnants' paragraph [TI for Sept., 1960, p. 13] and the letter from ..... [name of mill withheld] which you forwarded to me [have] resulted in their sale to ..... for one hundred dollars."

T. HARGREAVES

Textiles for Tots

It's encouraging to note that at least one grade-school teacher, Miss Mary Atkins of Maryland, takes textile promotion seriously. She wrote us that her third-grade students have tried their hands at carding, spinning, weaving, and designing—an exercise that she used to demonstrate the complexity of textile manufacturing—and that boys and girls alike worked at making a dress from a

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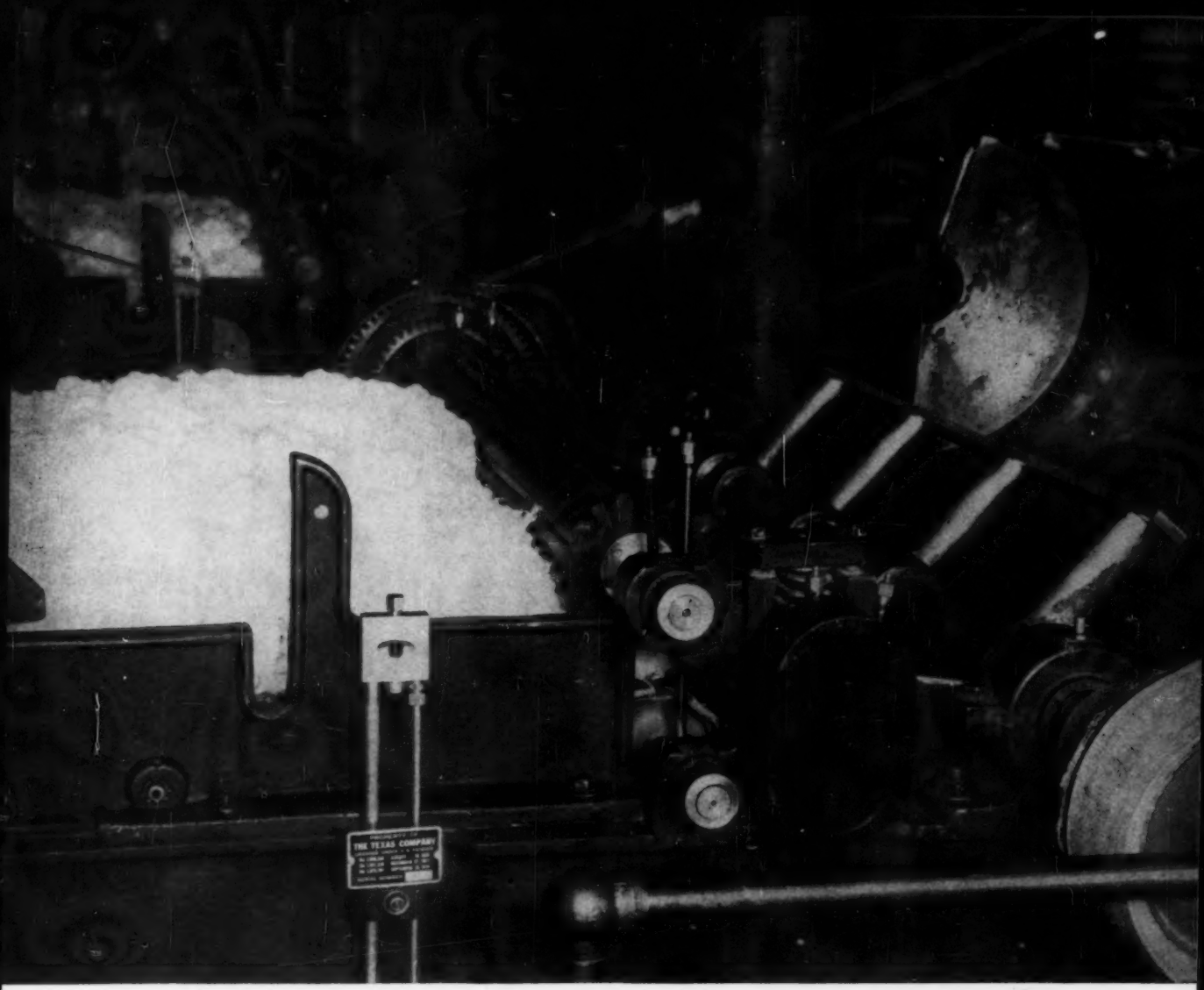
For further information use Handy Return Card, Page 121



IF YOU WANT TO BE CONVINCED ABOUT THE EFFECTIVENESS OF COTTON CONDITIONING COMPOUNDS...

Here are the proven benefits of Texspray

Yarn is smoother. Texaco Texspray Compound increases fiber flexibility by replacing natural oils; so fibers draft more easily and uniformly, with fewer ends down.

Staple is longer. Texspray conditioning produces a larger percentage of long fibers . . . preserves them against breakage in later manufacture.

Static electricity is sharply reduced. And, in addition, Texspray practically eliminates fly and dust—often by more than 75%!

Finishing is unaffected. Texspray is completely removed in the preparatory wash. Grey goods can be dyed or printed without altering color values.

Let a Texaco Lubrication Engineer show you where Texspray fits best into your operation. He will be glad to analyze your requirements, make complete recommendations. Just call the nearest of the more than 2300 Texaco Distributing Plants, or write Texaco Inc., 135 East 42nd Street, New York 17, New York.

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

TEXACO

Throughout the United States

Canada • Latin America • West Africa

Eastman now offers textile finishers 3 basic types of polyethylene

New EPOLENE resins enable textile chemists to formulate broader range of softeners

The wide range of properties now available in Eastman's Epolene series provides greater flexibility in formulating polyethylene emulsions for softening "wash and wear" cottons and synthetics, and for textile lubricants and sizes.

Permanent, low in color, non-chlorine retentive and easy to prepare, emulsions based on Epolene polyethylene give you a practical and economical method for improving the hand, abrasion resistance and tear resistance of "wash and wear" treated fabrics.

With Epolene, you can prepare any kind of emulsion system, cationic, anionic or non-ionic, with solids contents of up to 40%.

Choose from three different low-molecular-weight resins to obtain the right emulsion properties and finishing characteristics for your equipment and service.

Epolene E is the highest-molecular-weight resin of the three. It produces stable, low-color emulsion systems of superior quality for use in softening cottons or synthetics, or as a lubricant to reduce needle-cutting and increase sewability. Like other Epolene resins, it needs no curing, lasts through repeated launderings and resists dirt pick-up and redeposition.

Epolene LVE, a new resin type, has a lower melt viscosity than has Epolene E, thus offering somewhat better handling characteristics. Epolene LVE is softer than other resins in the series. The stability of its emulsions in the presence of resin catalysts is outstanding, especially at the low end of the pH scale, as indicated by its relatively high HLB factor.

Epolene HDE is the first high-density, emulsifiable low-molecular-weight polyethylene on the market. Because it is much harder, it improves significantly the abrasion resistance and tear resistance in cotton and cotton blends. Its stability and permanence are excellent. It, too, offers easier handling characteristics during emulsion preparation because of its low melt viscosity.

If you are formulating polyethylene softeners and would like to produce stable, economical emulsion systems of superior all-'round characteristics, look to Epolene from Eastman. Let us introduce you, also, to new time-saving and cost-cutting emulsifying techniques developed at our textile laboratories. For more information on the formulating and performance advantages of these superior polyethylene resins or for specific formulating assistance, write your nearest Eastman office. We invite your inquiry.

Property	Epolene E	Epolene LVE	Epolene HDE
Molecular Weight	2500	1500	1500
Density	0.938	0.939	0.956
Ring and Ball Softening Point, °C. (ASTM D-36-26)	104-108	104-105	110-111
Penetration Hardness (100 g./5 sec./77°F., tenths of mm.)	2	5	1
Color (liquid), Gardner scale, max.	2	2	2
Brookfield Viscosity (cps. @ 120°C.)	1500	400	455

Epolene

EASTMAN low-molecular-weight polyethylene resins

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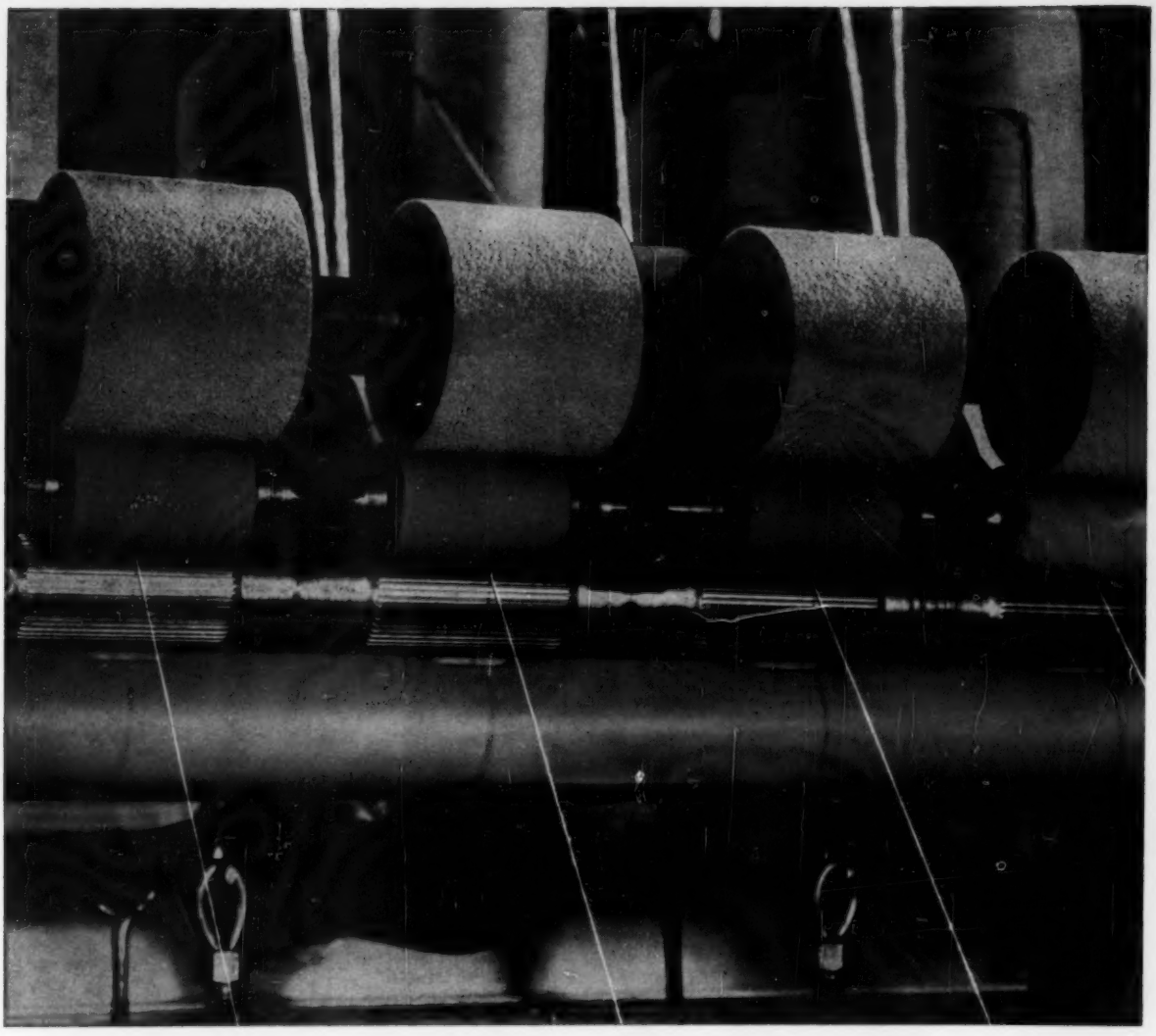


Save up to 50% in clearer picking and maintenance costs with this new cover

Accotex NK-770, an expanded rubber clearer cover developed by Armstrong, allows you to pick on the frame. Waste is collected evenly in a single piece . . . and can be removed with a quick motion of the hand, eliminating mechanical cleaning. These new covers last at least three times as long as conventional materials, yet they cost no more. In addition, many mills have found that NK-770 covers allow them to lengthen picking intervals and reduce picking crews. All these economies can add up to a 50% saving in clearer picking and maintenance costs. We'll prove it on your own frames. Ask your Armstrong man to arrange for a test installation. Or write for additional information to Armstrong Cork Company, 6901 Ivy Street, Lancaster, Pennsylvania.

Armstrong TEXTILE SUPPLIES

At new Foster plant of Alice Manufacturing Co., Easley, S. C., Amco systems give just the right temperature, humidity and room cleanliness.

Amco systems control temperature, humidity, room cleanliness at ALICE Manufacturing Company

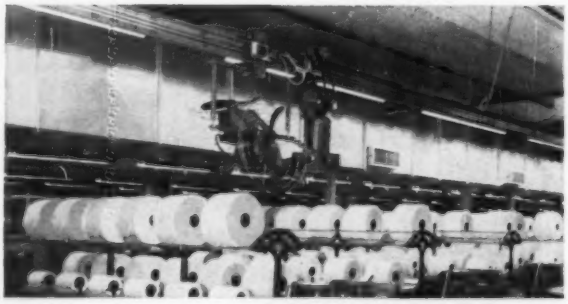
Alice Manufacturing Company is noted for its fine print cloth. One big reason for its success: rigid quality control.

Exact temperature, humidity and room cleanliness control is a must in this manufacturer's quality control set-up. That's why Amco Central Station Air Conditioning, Amco Ceiling Cleaners and Amco Heliclone® Loom Cleaners are on the job!

AMCO AIDS OUTPUT, CUTS WASTE

Here's how Amco-controlled temperature, humidity and room cleanliness help improve quality and boost production. They keep materials in top condition during each processing step to assure stronger, smoother, more uniform fabric. They permit closer machine adjustments, higher machine speeds. They reduce broken fibers, dust, fly . . . greatly decrease the need for cleaning . . . eliminate troublesome static electricity.

You can always rely on Amco to give you dependable advice and expert installation best suited to your needs. Why not learn how Amco can help *your* mill? Contact your nearest Amco representative today.



Combing department at Alice Manufacturing Co. relies on Amco Central Station Air Conditioning and Amco Ceiling Cleaner. Consulting engineers: Campbell and Leppard.

AMCO

Since 1888

Air Conditioning Equipment — Textile Specialties

American Moistening Company, Cleveland, North Carolina
Branches: Atlanta, Ga., Providence, R. I., Toronto, Ont.

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'BUFFALO' SINGLE SUCTION PUMPS

PUMPING APPLICATIONS: ● Clear water ● Saturated refrigerants ● Chemicals ● General Service

ADVANTAGEOUS FEATURES: ● Interchangeable parts ● Full ball bearing construction—takes speeds to 3500 rpm. ● Durable solid shell ● Efficient design ● Available in most machineable alloys

Few pumps are so adaptable to so many jobs. For capacities from 5 to 1200 gpm, they are the answer from clear water supply to handling an acid solution. High-speed ball bearing design often means selection of a smaller size for a given volume. Durable overall construction means low costs over the long pull, too. Write today for Bulletin 976 and see how profitably you can put these almost universal pumps to work!

"Buffalo" PUMPS

BUFFALO PUMPS DIVISION OF BUFFALO FORGE COMPANY

Buffalo, N. Y.

Canada Pumps Ltd., Kitchener, Ont.

Buffalo air handling equipment to move, heat, cool, dehumidify and clean air and other gases.

Buffalo Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

Buffalo Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

NEW RESEARCH FACILITIES...

to better serve the textile industry!

On Friday, November 11, 1960, Sonoco dedicated its new Research Laboratories Building which provides the industry with the *largest, most complete* laboratory in the field of paper textile carriers.

The building was dedicated in memory of Dr. J. E. Mills, Sonoco's first Chief Chemist and Research Director. It is a fitting tribute to a man who pioneered research in special lacquers, resins, coatings, adhesives and specialty papers for textile cones and tubes.

With new and enlarged experimental and research facilities, Sonoco's "problem-solvers" are in the best position ever to render technical service on customer problems, an added benefit when you buy from Sonoco.

This laboratory expansion typifies the leadership maintained by Sonoco for over 60 years. Continuous research and product development plus integrated manufacturing plants assure Sonoco customers of products which are "standard of the world"—*you can continue to depend on Sonoco.*

SONOCO

Products for Textiles

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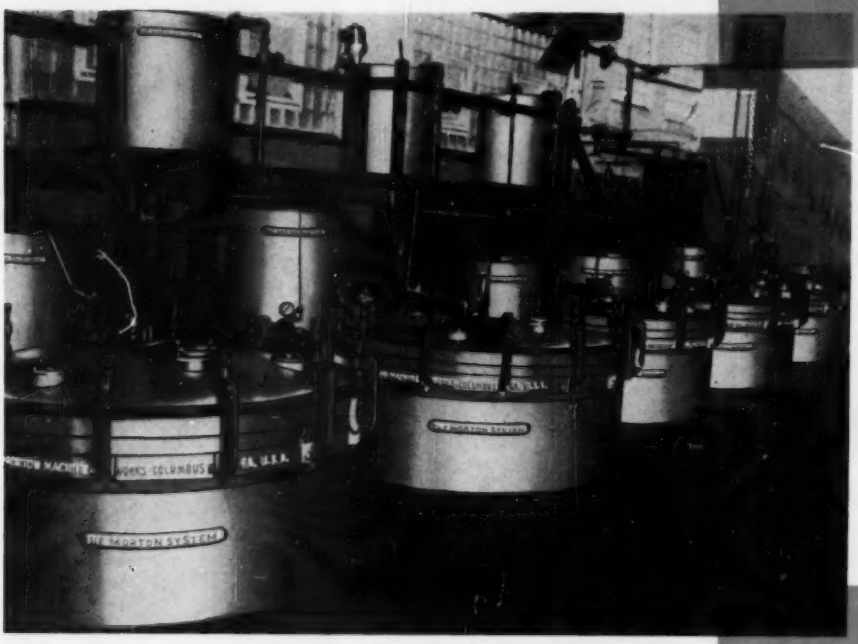
1731

IT'S TIME TO CUT COSTS!

FOR THE MOST EFFICIENT DYEING & BLEACHING EQUIPMENT, INSIST ON

MORTON SYSTEM

CONNECTICUT SHELF CLOCK, circa 1830
C. & N. JEROME
Bristol, Conn.



Morton System Dyeing Machinery is built to take tough treatment. Careful planning, precision engineering and skilled workmanship all work together in the Morton System.

You can count on more efficiency and level shades on cotton, wool, or synthetics.

MORTON
MACHINE WORKS, Inc.

COLUMBUS, GEORGIA U.S.A.

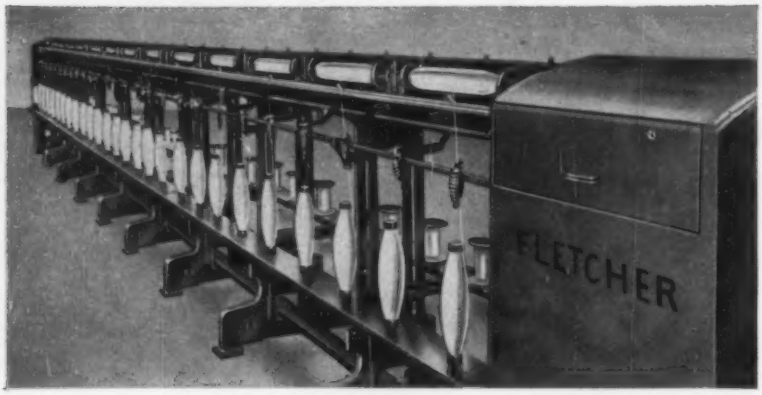
Manufacturers of the MORTON SYSTEM Machinery for Dyeing and Bleaching of:
BEAMS -:- PACKAGES -:- STOCK -:- PIECE -:- TOPS

VALVES • PUMPS • BEAM AND PACKAGE EXTRACTORS AND DRYERS • DYE BEAMS, ALL MAKES AND DESIGNS • DYE TUBES • DYE SPINDLES • TUBE SPACERS • STAINLESS STEEL DYE TUBES • CUSTOM BUILT TANKS TO CUSTOMER'S SPECIFICATIONS

FLETCHER

high speed WINDER REDRAW

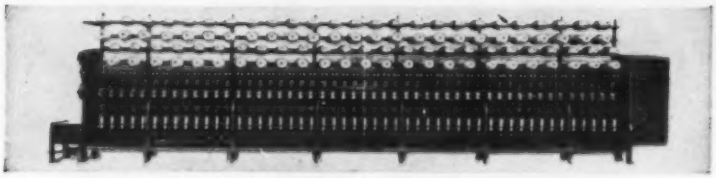
FOR GLASS AND SYNTHETIC YARNS



Here's the most modern redraw machine, Fletcher-engineered to give you top production.

- Vibration free operation
- Perfect wound bobbins at higher speeds
- Cleaner yarn because of no lubrication in the yarn area
- Three styles of bobbins, all sizes
- Higher speeds. 500 to 750 ypm on 2-pound bobbins.
- Pirns, bottle bobbins and Spools

TRY BEFORE YOU BUY with 3-month trial rental plan

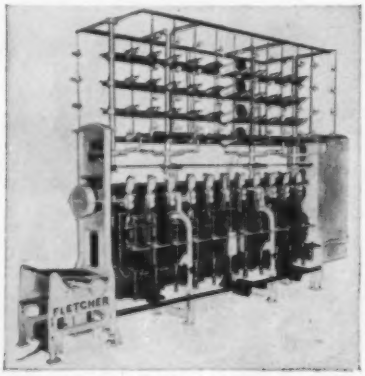


The* MASTER DUPLEX *Unsurpassed for glass fibers

New precision-built machine has speeds up to 9,000 rpm doubling, twisting and novelty for all yarns—glass, synthetic or natural.

FLETCHER
BIG 6 POUND
PACKAGE
JUMBO DUPLEX
DOUBLER TWISTER

Six pounds of continuous twisted and double high quality glass, textured, synthetic and cotton yarns. Bottle Bobbin, Straight or Tapered Pirn Package. 22-spindle and 72-spindle 6" ring. 9-inch and 10-inch traverse.



FLETCHER INDUSTRIES

Hasbrook Avenue and Beecher St., Cheltenham, Pa.

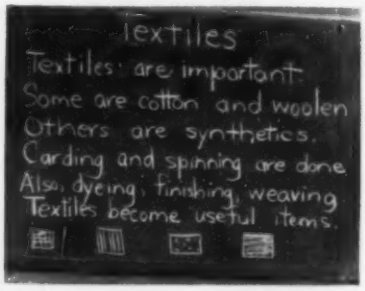
FLETCHER SOUTHERN — **SOUTHERN PINES, N. C.**

FLETCHER INDUSTRIES — **STATESVILLE, N. C.**

SHORTS & REMNANTS

(from page 6)

simple pattern. The material was cotton, although wool and the synthetics were also studied. The finished garment somehow was a satisfactory fit (garment cutters take note) for each girl in the class, was promptly labeled the "Magic Dress." Here's a photo of the chalkboard in Miss Atkins' class during the course in textiles:



Hope on Tariff Situation

Maybe the ultimate solution to the problem of textile imports will be something like Bob Hope suggested recently, as quoted in *TV Guide*: "If we're not careful, we're liable to wake up one day and find out we've given away the country. But it won't matter . . . we can always get a cheaper one built in Japan."

We hope this isn't seen in certain Washington circles; it might give them ideas.

Merry Oldsmobile

Allied Chemical Corp. recently ran a sales promotion contest for carpets of textured Caprolan nylon. Here are the winners with their prizes:

That's **Daniel J. Fitzpatrick** (left), of Croft Carpet Mills, and **Wallace A. Allen**, of Callaway Mills. And the strange devices are 2/3-scale 1901 Oldsmobiles which they were awarded for coming out on top in the contest.

Continued on page 129

New!

COMPACT Chemical Feed System

for

RUBBER

RESIN

PLASTIC

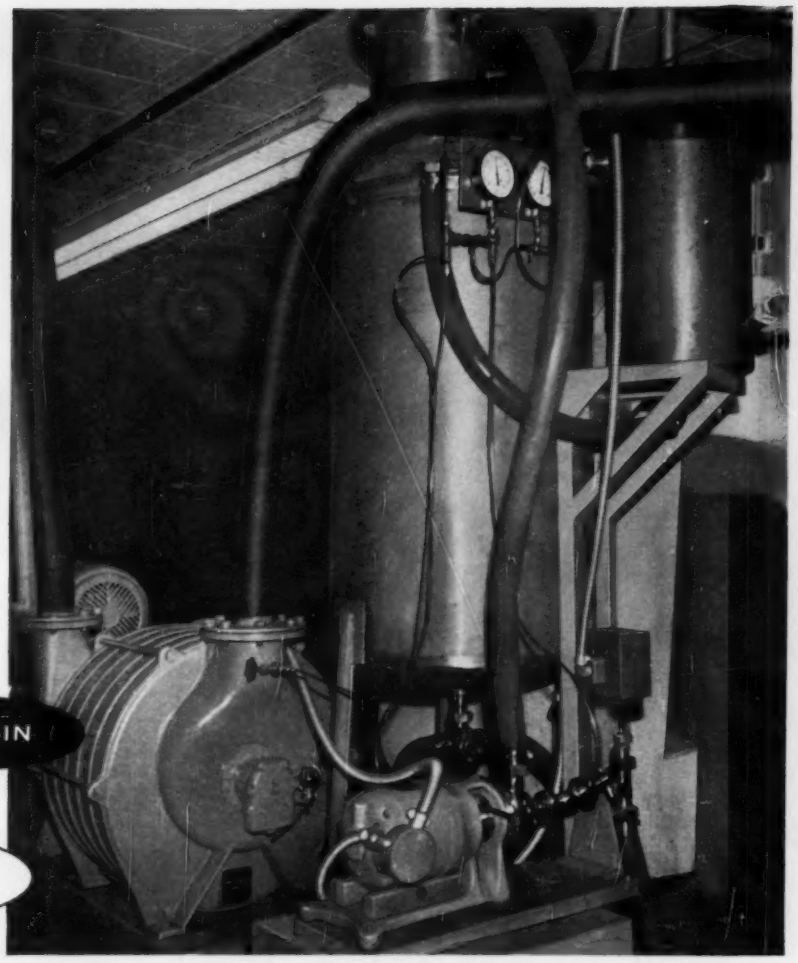
TEXTILE

DYESTUFF

CHEMICAL

and

PAPER INDUSTRIES



This package unit feeds fluid chemicals as required at a constant rate. It recycles the returned fluid continuously and rapidly in order to maintain constant, uniform chemical concentration under control at all times.

The Compact Chemical Feed System is constructed of stainless steel and non-corrosive materials for long, trouble free life. Valves and piping are the quick disconnect type for more efficient clean-up. The unit consists of a main reservoir mixing tank, sanitary circulation pump, full flow filter, constant pressure feed tank, drains and by-pass valves.

The Chemical Feed System may be installed in conjunction with the Curlator RANDO-BONDER or other processing line or chemical compounding equipment in a minimum of time.

TEXTILE DIVISION

CURLATOR®

CORPORATION

EAST ROCHESTER, NEW YORK

FREE SPINNERS

with

TYPE M

ROVING BOBBIN CLEANING MACHINES

Relieve spinners of twisting off roving and assign them more sides for a quick return on investment—average six months. Absolutely no bobbin damage at the cleaning machine.

Let a Terrell engineer show you how this equipment can save you money.

For further information use Handy Return Card, Page 121

NEWS IN BRIEF

Poor Image for Textiles. America's textile industry is still suffering from public attitudes hanging over from a generation or more

ago, says J. M. Cheatham, president of Dundee Mills, Inc., and of the American Cotton Manufacturers Institute. Expressing concern for what he termed the "discrepancy" between industry and public views of textiles, Mr. Cheatham said, "The picture conjured up in the public mind when someone mentions 'textiles' can have a profound effect upon the ability of our textile companies to attract investment capital; to recruit capable personnel; to maintain a favorable business climate in plant communities; to maintain good relations with the agencies of government at national, state, and local levels; and to prosper and progress."

Rx for Import Problem. A prescription for meeting the problem of foreign competition was offered to members of Woolens and Worsteds of America recently by Stanley C. Hope, board chairman of the National Association of Manufacturers. Ingredients of the

prescription: income tax reform, resistance to inflationary wage agreements and settlements which prohibit management from taking steps to more efficient production, pressure on Government to nego-

Labor-Management News

Union Men Start Jail Terms. With a chorus of strikers singing "Solidarity Forever," eight members of the Textile Workers Union of America, including several offi-

cials, recently left to begin serving terms ranging from two to ten years in Central Prison, Raleigh, N. C. The eight were convicted in July, 1959, of conspiring to dynamite the Harriet and Henderson Cotton Mills, Henderson, N. C., and had lost in a long series of court and clemency appeals. Although the two-year-old strike against Harriet-Henderson has never been settled, the mills are operating at capacity and are in the midst of an expansion program.

Textile Wage Hikes at Bottom. Wage increases becoming effective during 1961 under contracts now in force will average just over 8 cents an hour, according to a survey of over 1,900 companies by the Bureau of National Affairs. Increases in manufacturing industries will average 7.3 cents per hour, 10.4 cents in the nonmanufacturing industries. With a median increase of 5.0 cents for the 55 companies surveyed, the textile industry stands last of the 36 categories into which the manufacturing and nonmanufacturing industries were divided.

New Pacts. Negotiations on wage reopenings brought increases to members of Textile Workers Union of America at two North Carolina mills recently. In Durham, 150 employees of the printing department of Golden Belt Mfg. Co. received a 10-cent-an-hour package; while the 225 workers at Borden Mfg. Co., Goldsboro, got 5 cents an hour across the board. Meanwhile, at these six Philadelphia textile mills, TWUA members got a 10-cent-an-hour boost: Anchor Dyeing & Finishing Co., Franklin Process Co. (which has since closed), Hellwig Dyeing Co., Caledonia Dye Co., Electric Dye Co., and Fine Arts Lace Co. Two other Philadelphia plants also granted increases—6 cents an hour for the 90 employees at E. W. Twitchell, Inc., and 7 cents an hour for Frankford Woolen Co.'s 250 workers.

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Whatever the weather...
have the confidence that comes only with
seeing-eye safety
RCA AVQ-50 Weather RADAR
leads you safely around thunderstorms

SOUTHERN AIRWAYS COMPANY
Radio & Electronics Department
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tiate for relaxation of trade barriers of other nations, efforts to improve local business climate in the communities of America, and a raise in the general level of economic literacy of American workers.

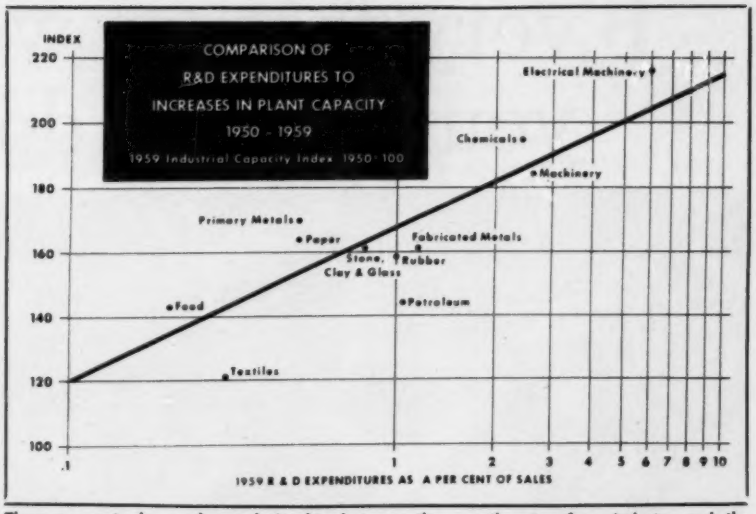
Wool Tariffs Raised. A new wool tariff of 38 per cent ad valorem, up from 32 per cent, became effective January 1. The "specific" rate of 37½ cents per pound for all-wool fabrics is unchanged. Under the new tariff, fabrics with a foreign value between $1.27 and $2.00 per pound will be assessed at 76 cents, and fabrics with a value less than $1.27 will be assessed at 60 per cent ad valorem.

Clemson Enrollment Up. Enrollment at the School of Textiles, Clemson (S. C.) College is 300 during the current semester, up from 266 last year. The number includes 79 freshmen, compared with 56 a year ago.

Fiber Fact Book. A 32-page "Man-Made Fibers Fact Book" has been published by and is available from the Man-Made Fiber Producers Association, Inc. It tells briefly the history and growth of the industry and cites facts to illustrate the contributions it makes to the nation's economy.

Executive Pay Raises Steady. Pay for executives at all levels has been increasing at almost the same rate—5 per cent at the top level—for the past five years, with the biggest gains at the lower levels, American Management Association

reports. In an "average" year, about half of the executive group will get a pay hike, 40 per cent will maintain the same salary, and 10 per cent will take a cut. In the recession year 1958, the percentages of executives getting a raise or maintaining the same salary were reversed, but the pattern returned to normal the following year. AMA's latest report covers 37,000 executives in 3,800 companies.



There seems to be a close relationship between the growth rate of an industry and the amount it spends on research and development. In this chart, prepared by the management research department of Booz, Allen & Hamilton, it can be seen that those industries which allocate the largest percentage of the sales dollar to R & D have also had the largest increases in plant capacity. Note that the textile industry, which spends less on R & D than any other industry except food, has also had considerably less growth than the others.

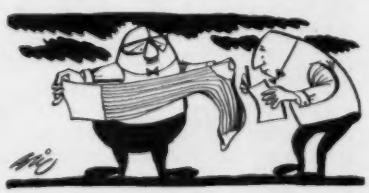
Outlook for Canadian Man-Mades. Canadian mills producing man-made-fiber fabrics see no halting of the current trend—a shrinking share of a reasonably

steady market—as long as imports have easy access to Canada. Long-time difficulties caused by imports from the U. S. have been compounded by garments and fabrics coming in from Japan, with Hong Kong now making a bid for the Canadian market. (The U. S. is by far the largest exporter of man-made-fiber fabrics to Canada—15 million yards in the first half of 1960, compared with 473,000 yards from England, the next largest supplier.) Canadian mills now supply about 69% of the domestic market for these fabrics.

Senator Calls for Quotas. Establishment of a system of textile

import quotas on a country-by-country basis and by specific categories and types of textiles has been strongly urged by Senator Styles Bridges (R., N. H.). The senator called for a 12-point program of "new and bolder" action on imports of textiles, and pledged, "During the next session of Congress I intend to exert every effort to put these steps into effect promptly and completely."

Urge Acceptance of Sock Standard. National Association of Hosiery Manufacturers is urging that its members sign and return



acceptance forms for the new U. S. Commercial Standard, "Measurements for Stretch Socks and Anklets, TS-5492." The new

Every feature works in your favor...dollar-wise

Here's how you benefit:

- no costly apparatus houses
- low operating and installation costs
- light weight permits ceiling suspension
- complete flexibility meets present and future needs
- provides all or any air conditioning combination such as humidifying, ventilating, heating, filtering, dehumidifying, evaporative or refrigerative cooling

Humiduct is an exclusive Bahnson design. A space saving, unit type system, it offers highest air conditioning efficiency at lowest cost.

Optional Easy-Flo Filters are economical air filters designed to prevent lint accumulation in the air conditioning equipment, thus reducing costly cleaning operations and providing more efficient air handling.

Clip coupon to letterhead. Mail today for FREE ILLUSTRATED BULLETINS—Bulletin 4A-Humiducts; Bulletin 27A-Easy-Flo Filters.

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Bahnson

AIR-O-MATION

THE BAHNSON COMPANY • WINSTON-SALEM, N. C.

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standard is essentially the same as that promulgated by NAHM about four years ago.

FRL to Study Jute. Fabric Research Laboratories, Inc., Dedham, Mass., has been engaged by the Indian Jute Mills Association to study the competitive position of jute in current markets and make recommendations for increasing jute consumption.

Gloves Essential to Security? The Office of Civil & Defense Mobilization has found, and the National Association of Wool Manufacturers has strongly disagreed,

that wool knit glove imports are not a threat to national security. Imports of wool gloves and mittens have exceeded domestic production since 1954.

Japan Finances Pakistan. Pakistan's textile industry has obtained financing from Japan for 355,000 spindles and 3,000 looms.

PTI 5-Year Plan. Philadelphia Textile Institute has adopted a new five-year development program with a goal of $4,051,775. The new program is aimed at faculty salary improvement, pension endowment fund development, faster debt amortization, new women's dormitory, expanded research and development facilities, and new laboratory equipment.

Award for Textile Scientist, JG. Its members have voted to create "The Fiber Society Award for Distinguished Achievement in Basic or Applied Fiber Science," to be given by the Society to a scientist for achievement completed before his 35th birthday. An engraved scroll and $500 go with the award. The Society, in deciding to establish the award as a stimulus for younger scientists, said that several awards already exist for lifetime contributions to fiber science.

Fewer Knitting Machines. There were 16,163 circular knitting machines in the United States on June 30, 1960, according to a sur-

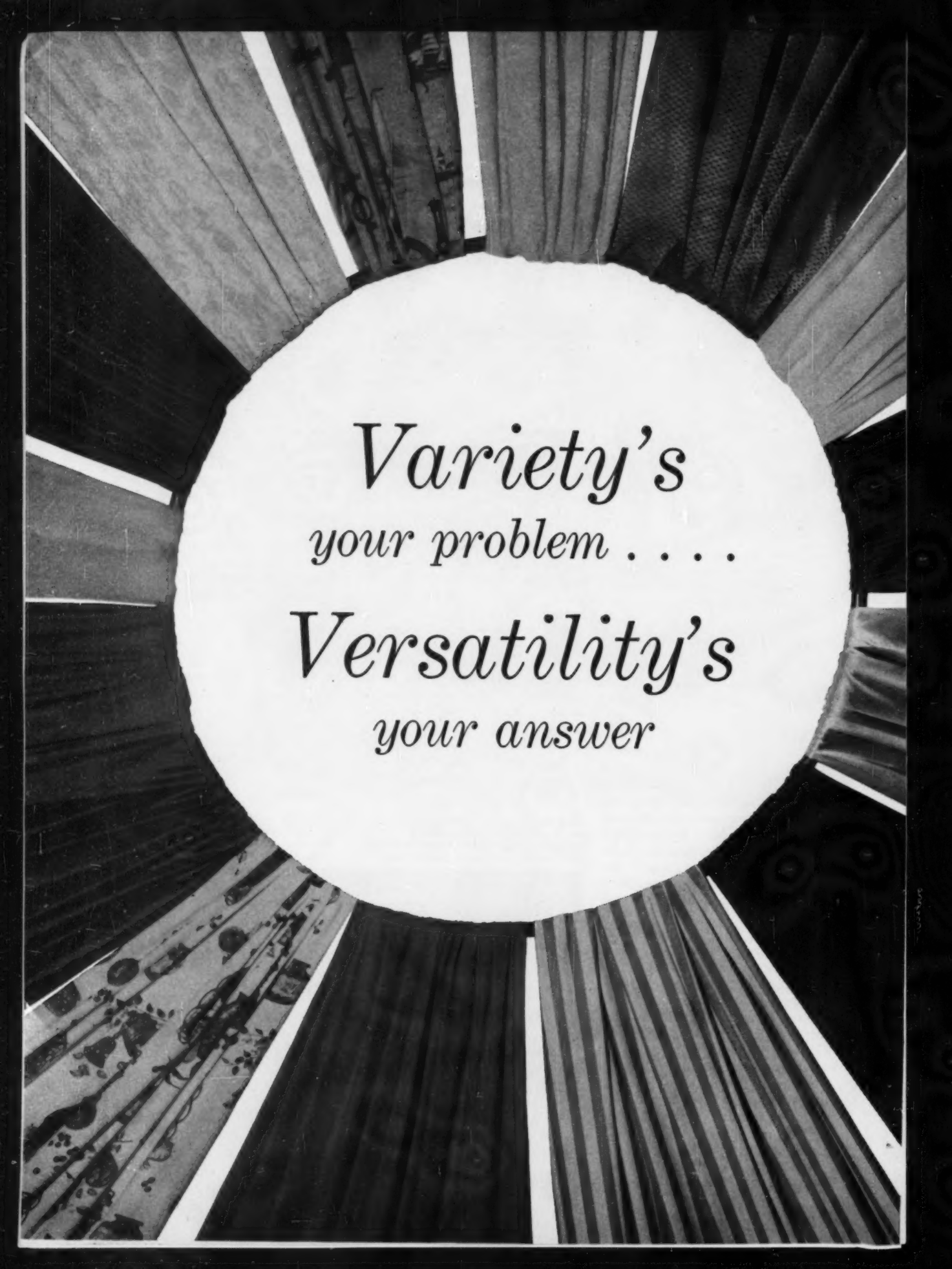
vey by Morris Speizman Co., Inc. This compares with the 24,462 machines recorded in the last Speizman survey, made in 1957, or a decrease of a third in only three years.

Report on DSL's. There are now over 1,600 Draper shuttleless looms in successful operation, the firm's current annual report reveals. "The range of fabrics being woven at present is more limited than anticipated; therefore, the major part of research effort is concentrated on broadening this base," the report said. The company's backlog of orders for conventional looms was reported to be ahead of last year, although the slowing down of activity in the textile industry has affected new orders. Current production of 800 to 1,000 looms of all types per month is scheduled into the second quarter of this year.

Short Fibers in Cotton. After measuring the percentage of short fibers (below ½") in several hundred bales of cotton, U. S. Department of Agriculture reports that: Per cent of short fibers tends to decrease significantly as the staple length increases; the short-fiber content of recent (1955-60) staple standard bales is less than 1 per cent greater than for earlier years (1939-45).

"American Textiles First"—ACMI. American Cotton Manufacturers Institute's board recently passed two resolutions concerning the relations between the U. S. government and domestic and foreign textile industries. The first called the attention of the government to surplus textile manufacturing capacity throughout the world, and urged that any enlarged foreign aid to South America or Africa be channeled into other industries. The second called for purchase from domestic sources of at least half of the textiles procured with International Cooperation Administration funds (it's now 8 to 12 per cent). The board also approved nation-wide public education programs on the modern textile industry, and in support of the textile stand on the imports issue. * * * To help mills spread the story of the nation's modern textile industry, ACMI offers at cost a kit which consists of a script and a series of demonstrations for use before women's clubs, civic organizations, schools, and other groups.

Abstract swirls of plastic are sprayed onto fabric on a production-line basis in this textile "printing" process. Process was developed by B. F. Goodrich Chemical Co., and equipment shown above is new installation at the School of Textiles, N. C. State College. (For details of a similar process, see TI for April, 1960, page 131.)


Variety's
your problem . . . .
Versatility's
your answer

Today's changing modes of fabric consumption demand a high degree of weave room versatility. UNIFIL® Loom Winders are bringing this advantage to many modern mills.

With UNIFIL Loom Winders the weave room becomes completely market oriented, because a wide variety of filling yarns may be used; natural and man made; spun filament and textured. The single shuttle weave room can switch filling yarn from one count to another, from one fabric to another as quickly as fashion dictates — *and at no extra cost.*

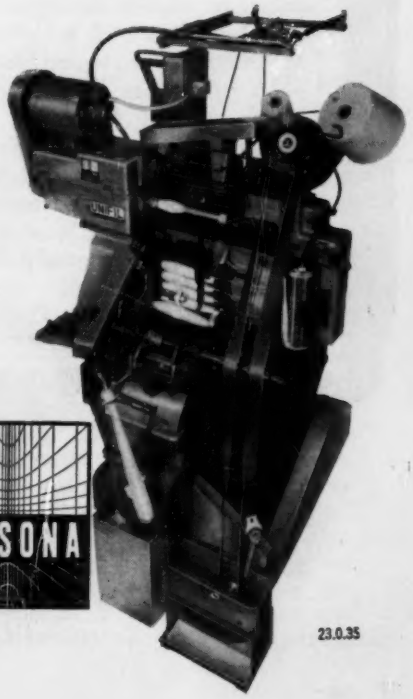
In addition to minimizing the caprice of style as a production factor, UNIFIL Loom Winders drastically reduce inventory and production planning, work scheduling and employee training. This is accomplished by the elimination of several operations.

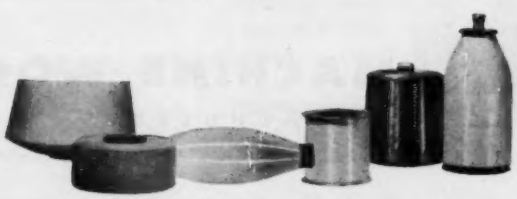
UNIFIL's unmatched versatility meets today's needs and tomorrow's markets. It allows mills to wind from any filling supply *economically.* Quills are wound and shuttles loaded, empty quills stripped and returned for rewinding — *all automatically at the loom!*

The UNIFIL story is one of versatility and economy. It clearly indicates why leading textile mills consistently reorder UNIFIL Loom Winders. Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island. Keep pace with your market with UNIFIL.

Some of the many modern mills
that are meeting today's challenges with
UNIFIL *Loom Winders*

ABNEY MILLS
AMEROTRON COMPANY
ARCO MILLS
BEAUNIT MILLS, INC.
BERKSHIRE HATHAWAY, INC.
BLANCHE COTTON MILLS
BOONTEX FABRICS
BURLINGTON INDUSTRIES, INC.
CANADIAN CELANESE, LTD.
CANNON MILLS CO.
CARTHAGE FABRICS CORP.
CONE MILLS CORP.
CONSOLIDATED TEXTILES
DOVER MILL group
DRAYTON MILLS
EXPOSITION COTTON MILLS CO.
GALLANT MFG. CO.
GLEN RAVEN SILK MILLS
GREENWOOD MILLS
JUDSON MILLS
KEYSTONE WEAVING MILLS
LAURENS MILLS
M. LOWENSTEIN & SONS, INC.
MACHIAS MILL
MARVEN LOOMS, INC.
PAXON FABRICS CORP.
PONEMAH MILLS
RICHARD TEXTILES
RIVERSIDE MILLS, INC.
SCHWARZENBACH-HUBER CO.
WILLIAM SKINNER & SONS
STANDISH MILLS
STARR MILLS CORP.
J. P. STEVENS & CO.
STONECUTTER MILLS CORP.
TALLASSEE MILLS
UNITED MERCHANTS & MANUFACTURERS, INC.
WAUMBEC MILLS, INC.
WOODSIDE MILLS





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Men who think

BIG

choose the WHITIN COMMODORE® Twister

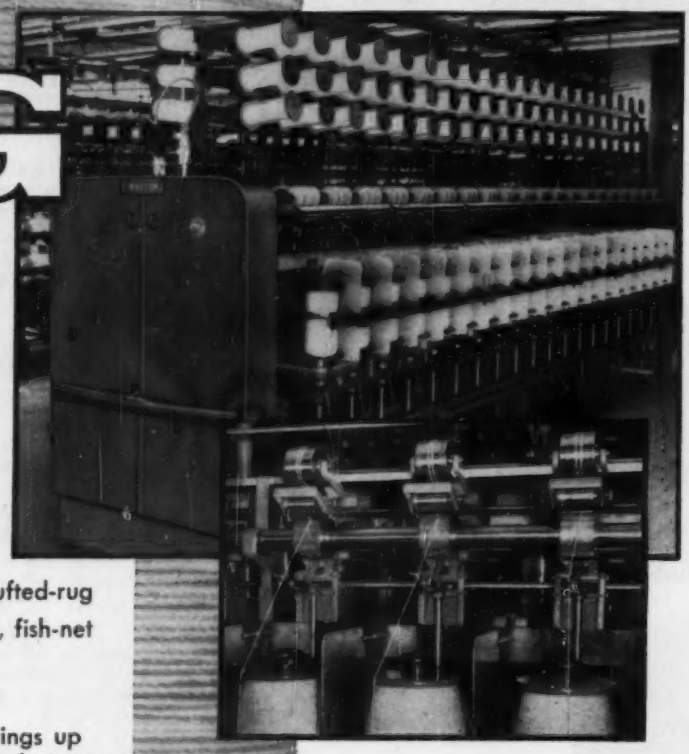
The COMMODORE is designed to do just one job — heavy-duty, coarse yarn twisting, and to do it more *profitably* for you.

The COMMODORE is ideal for twisting a wide variety of plied, heavy and coarse yarns such as tufted-rug yarns, carpet yarns, duck, tire cord, fish-net cord and paper.

* * * * * * * * *

With a 12" traverse and giant rings up to 8½" in diameter set in heavy steel ring rails, it is capable of processing yarns as coarse as 45,000 denier on packages holding as much as 11.0 lbs. of yarn. The COMMODORE has a rugged, solidly-built frame — a frame that can carry its tremendous loads without flinching. It is liberally equipped with anti-friction bearings, has precision-cut gearing and a sturdy pulley-type tape drive. Extra heavy ball bearing spindles mounted in cast iron spindle rails easily rotate these heavy packages at speeds reaching 4000 R.P.M.

A Big Twister to do a Big job — with all the advantages of **big, Big, BIG** packages.



Of particular interest to woolen yarn and carpet mills is the famous Whitin selective-type trap motion. It is available as optional equipment and can accommodate up to 6 ends. Proven on scores of installations, it has established an industry-wide reputation for efficient, positive and trouble-free operation.

WHITIN

Write Today for Descriptive Folder

WHITIN MACHINE WORKS

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

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RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

FIBERS AND YARNS

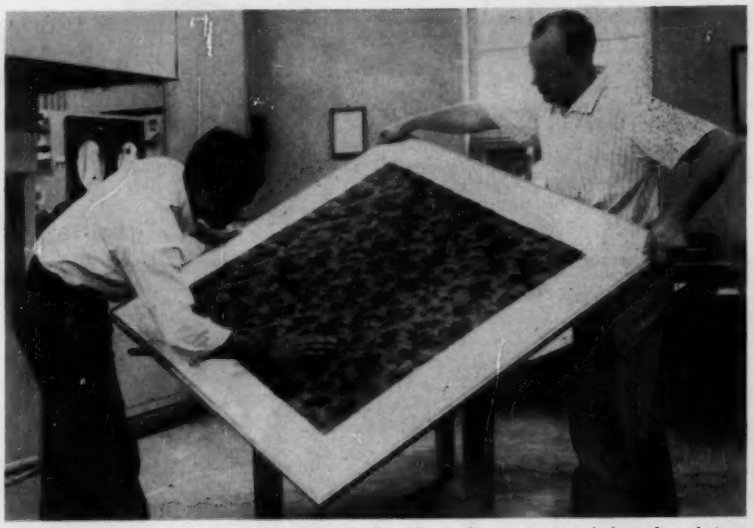
Cross-Linked Rayon. Research workers in a Japanese rayon and pulp company have reported that simultaneous use of partial acetalization and fibrous nitration of rayon improve instantaneous and delayed elastic recovery. It is suggested that if cross-linking and nitration conditions are combined appropriately it is possible to improve the wrinkle recovery and water resistance of rayon. Further research is planned on acetylation and cross-linking.

Processing Feathers. A new process for the chemical modification of feathers, utilizing a commercial product containing basic chromic sulfate, has been developed by the QM Corps at the Research & Engineering Command in Natick, Mass. Named "Tan-O-Quil-QM," this technique is said to impart water repellency, improving the filling power of feathers and providing the ability to combat micro-organisms which build up in pillows and result in bad odors and deterioration. Chrome complex as a solution in isopropyl alcohol provides water repellency. Chemical cost is about 5c per pound.

Modified Cross Sections. Studies have been made in East Germany of the properties of synthetic yarns produced with odd-shaped spinnerettes to yield modified cross-sections, noting particularly the effect on fiber bending and abrasion resistance. Those types selected as best for mass production have been a 10-pointed star, a 5-pointed star, and a 3-pointed hollow star.

MACHINERY AND PROCESSES

Sliver-to-Yarn Spinning. An English concern has disclosed test results obtained with their direct sliver spinning system. Speed frames are completely eliminated, effecting considerable labor savings. Less frequent creeling is required at the ring frame, and yarn strength and uniformity are said to be superior to those of regular spun yarns.



New outlet for fabrics as laminates in furniture and paneling is promised through technique developed by Food Machinery and Chemical Corp. Fabric is saturated with diallyl phthalate by spraying, brushing, or dipping, then laminated to wood or other suitable core at 100-250 psi (other commonly used plastic surfaces require laminating pressure as high as 1,000 psi). Linen, silk, and cotton have been successfully used with the process by FMC in experimental work.

Automated Spinning. About 6,000 super high draft spindles are reported to be in operation in a Japanese mill, with savings of 80% in labor in operations to drawing, and 40% in subsequent spinning, doffing, and winding. It is planned to have full-scale operations under way next year.

Dry Sizing. The Japanese National Textile Research Institute reports a newly developed warp sizing for synthetics which are susceptible to heat. The material is used with organic solvents and commercial application is said to be practical after some minor improvements are made.

Nonwovens. The Czechoslovakian Institute of Knitting Research has developed a warp knitting machine in which a card web of fibers is combined with a warp knitted fabric. A tubular-type needle has hooks which terminate in points and pierce the web. Apparel and insulation fabrics have been produced in weights up to about 22 oz per sq yd. A typical wadding for garment insulation is composed of 80% web fibers and 20% yarn.

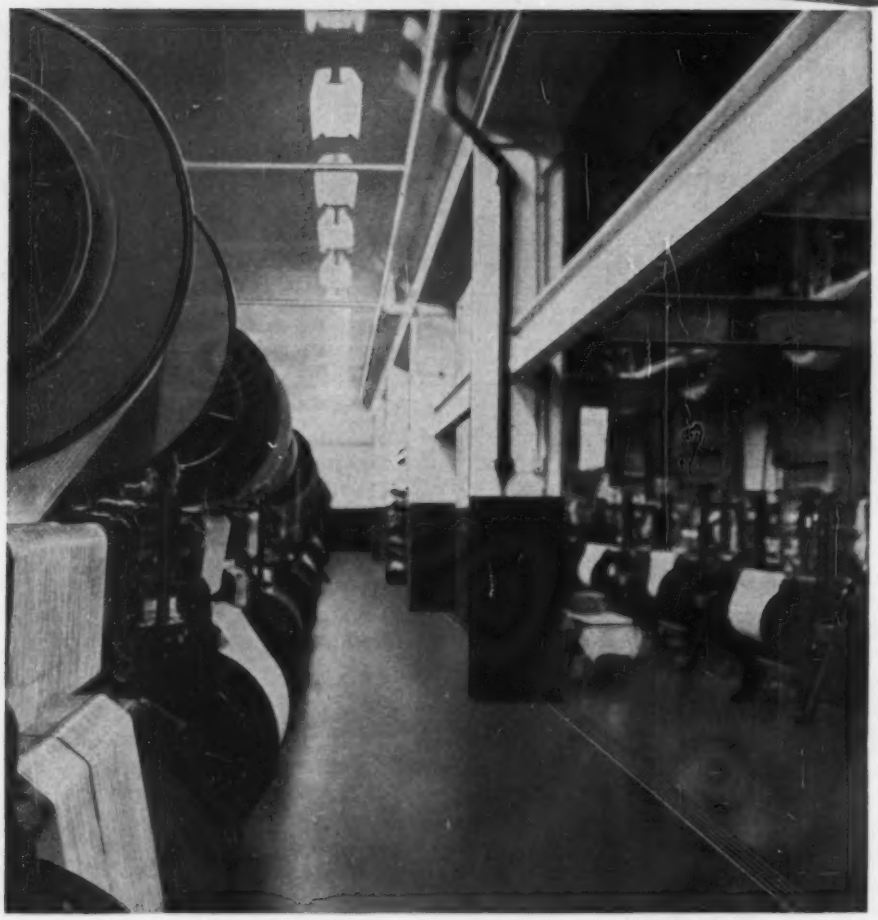
Pique Knitter. A new machine for knitting pique fabrics will soon be introduced by Scott & Williams. The 32-feed machine will be of the stationary cylinder type, and will be available in fine cuts, up to 18 needles per inch. Speed is 23 rpm.

Imitation Eyelet Embroidery. Patented by a German company in Great Britain is a technique for producing an imitation eyelet embroidery. The fabric is printed with a paste containing a monomer or low polymer of a thermosetting resin, then removing the fabric portions surrounded by the imprint by a paste containing sulphuric acid.

Plant addition stabilizes weaving mill for Dundee

Dundee
MADE IN U.S.A. SINCE 1888

Severe vibration set up by high speed looms threatened to destroy building at left. New structure at right served as buttress to steady original mill and also provided valuable addition to Dundee's production area.



Interior view showing looms in original building on right of floor plate and additional looms in new building at left. Original weave room wall was removed so that operations between the two buildings may be completely integrated.

Dundee Mills, producers of fine textiles since 1888, called in Robert & Company Associates when severe vibration was causing serious deterioration of the weaving building at their #1 mill in Griffin, Georgia.

After a thorough study of the problem, Robert & Company engineers designed a "buttress" in the form of a two story addition with strength to spare. This modern two story building not only gave new life to the older 60,000 sq. ft. building by reducing vibration, but also provided Dundee with a valuable addition to their production area.

Perhaps your mill can profit from Robert & Company's 42 years experience in working with the leading names in textiles.

ROBERT AND COMPANY
ASSOCIATES
Textile Engineering Division
ATLANTA

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EXECUTIVE VIEWS

Prepared by a man who is closely identified with the textile industry.

Let's protect the right to work

IF THERE is any substance to campaign promises, leaders in the textile industry should lose no time in girding themselves for a battle to preserve the Right-to-Work Laws which are now in force in a number of states. Leaders of every section and industry have a vital interest in these Right-to-Work Laws, but they are particularly important in the southern states.

The South has enjoyed a period of tremendous expansion and increasing prosperity for the past 25 years or more, and practically every textile mill which has moved into the South from the North came here to get away from intolerable conditions imposed by labor rackets. We do not know of a textile plant which moved to the South during the past 25 years for any other reason. To what extent this is true in other industries we do not know, but we are quite familiar with what has been going on in textiles.

The South has been a great stronghold of free enterprise and free labor, and the labor officials who have tried to do something about this have met with bitter frustration over the years. We can expect them to make a powerful effort to get the new Administration to make good on the campaign promises to pass a national law which will nullify all state Right-to-Work Laws.

Leaders of the textile industry in the North also are keenly interested in this matter. There are very few cotton mills left in the northern states, but most of the woolen industry is still there, and a majority of the woolen mills which have survived seem to have either gotten rid of their unions or achieved a position where they are able to ignore them. Years ago, the unions maintained almost a complete and thoroughly autocratic hold on the textile industry in the northern states, and by their foolish insistence on the maintenance of antiquated work loads, the northern cotton and synthetic textile industry was wrecked and the woolen industry seriously crippled.

WE HAVE steadfastly maintained for about 30 years that control of the labor unions was probably the Number One Domestic Problem in this country. Freed from practically all legal restraint in any thing they may decide to do, the unions have built up vast reservoirs of power which can defy the government itself. Sooner or later, it has seemed to us, the American people would want a showdown on this dangerous situation, where a handful of labor leaders who are virtually dictators over the lives and actions of many people can exercise such a dangerous control over the national economy.

There is probably going to be a showdown over this Right-to-Work principle next year, and maybe some champion of the general public will rise up to lead a movement to cut these labor rackets down to size and make them amenable to the same laws that govern the rest of us.

It has always seemed to us that the right to work where one pleases and can get a job is inalienable under our Constitution. That men can be forced as the price of making a living to pay tribute to labor unions, and submit to their discipline and starve if they so order, seems to be utterly repugnant to anyone who cherishes the principles of liberty. Yet, in many localities in the United States, almost every working man is forced into virtually a peonage system if he expects to live. It is practically impossible to work at anything without paying tribute to a union.

The big labor unionists of course ardently defend this practice, and feel that a man who isn't willing to pay tribute to them shouldn't have any right to live.

THE BIG LABOR monopolies for years have been dedicated to a policy of continuous and endless inflation, and this has now got us in serious trouble. Our exports now consist principally of what

we are giving away, and it is becoming harder and harder to sell abroad anything made in the United States with overpriced labor. The steady drainage of our gold reserves shows that many foreign countries shipping goods to the United States do not wish to buy our goods in exchange because they are too expensive, and therefore they want payment in gold, which is a universal commodity.

Our people are accustomed to look scornfully upon the wages paid in many European countries, but our abnormally high wages are accompanied by an abnormally high cost of living, and a European workman making 75 cents an hour would generally consider himself highly paid; whereas an American workman doing the same thing would feel that $1.50 an hour was outrageously low. High wages and a high cost of living always go together, since the cost of everything is almost entirely the cost of labor for making and distributing it.

If our country could have avoided most of the terrible inflation which has taken place in the past generation, we would be in much better condition to compete in the business world than we are, and could have avoided the ruin of millions of our people who tried to live on legacies or savings constantly diminishing in value. It is as certain as anything can be that our labor unions are going to constantly and persistently fight for higher and higher cash wages, regardless of whether anything has been done to improve the productive capacity of the people getting the wages. This is just plain old-fashioned inflation, and we are face to face with it all the time so long as our major industries are completely at the mercy of irresponsible organizations controlling their working forces.

We urgently need a National Right-to-Work Law which would free millions of people from labor union tyranny, and put the unions on a decent and respectable basis, where membership was voluntary and actions harmful to the best interests of the members would result in resignations. This would have a most salutary effect on these big unions. As matters stand, it is as much as a man's life is worth to try to buck the policies of the powers that control a number of our big unions. These unions will fight with every resource at their command any attempt to restrict the abnormal powers they now exercise, and they are certainly going to try to nullify the state Right-to-Work Laws if they can.

If these laws are protected, and if more and more states pass Right-to-Work Laws, we may hope ultimately to have a national law, recognizing the right to join or refrain from joining any organization. A man should no more be forced to join a labor organization than to join a church or some political party not of his choice.

Campaign promises are often conveniently forgotten, but we doubt very much if the big labor monopolies are going to permit this campaign promise to be cast aside.

FUTURE EVENTS

Date		Event	Location
Jan.	13	Hudson-Mohawk Section AATCC	Jack's Restaurant Albany, N. Y.
	20	Northern New England Section AATCC	Motel 128 Dedham, Mass.
	20	Metropolitan Section AATCC	Hotel New Yorker New York City
	21	Piedmont Section AATCC	Poinsett Hotel Greenville, S. C.
	30-31	National Cotton Council annual convention	Hotel Peabody Memphis, Tenn.
Feb.	7-9	Canadian Textile Conference	Queen Elizabeth Hotel Montreal, Canada
	8	American Association for Textile Technology annual meeting	Hotel Commodore New York City
	9-10	Wool finishing conference, sponsored by U. S. Dept. of Agriculture	Western Regional Research Laboratory Albany, Calif.
	11	Southeastern Section AATCC	Callaway Gardens Pine Mountain, Ga.
	13-16	International Heating and Air-Conditioning Exposition	International Amphitheatre Chicago, Ill.
Mar.	16-17	ASME Textile Engineering Conference	Clemson College Clemson, S. C.
	23-24	Textile Quality Control Association	Hotel Charlotte Charlotte, N. C.
	23-25	American Cotton Manufacturers Institute annual meeting	Fontainebleau Hotel Miami Beach, Fla.
April	7	Niagara Frontier Section AATCC joint meeting with Ontario Section CATCC	St. Catherines, Ont.
	12-14	Alabama Textile Manufacturers Association annual meeting	Buena Vista Hotel Biloxi, Miss.
	16-18	Narrow Fabrics Institute, Inc., meeting	The Tides Inn Irvington, Va.
	19-21	Southeastern Regional ISA Conference and Instrument Exhibit	Park Center Charlotte, N. C.
	24-28	Knitting Arts Exhibition	The Auditorium Atlantic City, N. J.
	24-25	Underwear Institute annual meeting	Hotel Dennis Atlantic City, N. J.
	24-25	National Association of Hosiery Manufacturers annual convention	Claridge Hotel Atlantic City, N. J.
	26-29	Georgia Textile Manufacturers Association annual meeting	Hollywood Beach Hotel Hollywood, Fla.
	27-28	Fiber Society	Ga. Center for Continuing Education, Athens, Ga.
May	6	Alabama Textile Operating Executives slashing and weaving discussion	Thach Auditorium Auburn, Ala.
Sept.	28-30	AATCC national convention	Hotel Statler Buffalo, N. Y.
Oct.	11-21	International Knitting Machinery and Accessories Exhibition	Belle Vue Hall Manchester, England
Nov.	8-9	Chemical Finishing Conference	Sheraton Park Hotel Washington, D. C.

COLORING, BLEACHING, AND FINISHING DEVELOPMENTS

Creasing Nonwrinkling Cottons. National Cotton Council has been awarded a patent on a method for forming a durable crease in a crease-resistant cotton fabric, by treatment with an acid catalyst and selected chemical agent. Process involves wetting an area along which the crease is to be formed with an aqueous catalyst solution, which serves to destroy the crease-resistance of the fabric in that section, forming the crease, and applying heat and pressure to reform the chemical bonds.

New Finish for Wool, Nylon. A New Jersey scientist is offering a nontoxic hydrocarbon of vegetable origin which he claims will improve the hand of woolens and impart superior wear-resistance qualities to nylon fabrics and hosiery. Treatment is carried out in a bath at 90 F, with no curing required. Chemical cost is about $3 per lb, sufficient to treat 1,000 lb of wool and up to 3,000 lb of nylon.

Punch-Card Dyebath Control. It is reported that a punch-card system is in use in England to control all services required for a dyebath. Automatic control is provided for on-off operations from water inlet to finish feed, as well as for dyebath temperature and liquor level. Reproducibility of shade on repeated dyeings is reported to be good.

Nonleaching Mildew Preventives. A new series of nonleaching mercury compounds is offered as bacteriostats, fungicides, and mildew preventives for textile fabrics. The compounds are said to be compatible with most other finishing materials and can be readily applied in dye or finishing baths on fabrics of natural or man-made fibers.

Nonwet, Nonshrink Wool. A patent was recently issued to a Massachusetts inventor for a process to render wool water repellent and shrink resistant. The method involves drying the wool to under 10% regain, then subjecting it to vapors of an organo silicon halide.

Pressure Dyeing. Swiss Benninger pressurized automatic jig for dyeing polyester and nylon fabrics is designed to operate at pressures up to 30 psi. Provision is made for removing sample from the chamber without reducing working pressure by insertion of a stainless steel wire with a barbed hook and knifing mechanism, op-

The Laminate Story

■ A NEW CONCEPT in the design of outerwear fabrics is evolving around the use of polyurethane foam as an insulating material. Introduced less than five years ago, this sponge-like, breathable material offers warmth without weight, and can be permanently bonded under heat and pressure to knitted and woven fabrics of natural and synthetic fibers.

Polyurethane is chemically resistant, and it can be washed and drycleaned. To knitted fabrics, particularly, which are inherently elastic, the foam backing imparts a measure of stability and improves draping qualities. Numerous fabric-foam combinations are now on the market. The foam can be bonded to a single outer fabric, such as a cotton knit; or it can form a sandwich with a cotton knit and a woven fabric, for example, for reversible wear.

Lamination need not be restricted to knitted and woven fabrics. Nonwovens and vinyl materials can also be used to form an endless variety of combinations.

The process of lamination, in concept at least, is relatively simple. The polyurethane foam, of suitable thickness and width, is heated and laminated to fabric continuously. First, heat is applied under careful control to the outer surfaces of the foam, to a degree that will just begin to melt the polyurethane (which reportedly can be done by a heated roll). In the heated condition the foam passes immediately through a set of rolls where it is bonded to the fabric or fabrics under pressure.

Though laminating technology appears to be well advanced and innumerable fabrics are available to the consumer, the entire field is regarded as being too "new" to offer evidences of a specific rate of growth. It may be indicative, however, that one knitter—Pyramid Mfg. Co., Inc., of New York City—reports that its production of knit fabrics laminated to polyurethane foam increased from 100,000 yards in 1959 to about a million yards last year.

Laminated fabrics face stiff competition from conventional fabrics and linings which have an established consumer acceptance. Among these are synthetic pile fabrics, wool, alpaca, and quilted linings, not to mention such unlined fabrics as the popular loden cloth. But competition notwithstanding, production of polyurethane is said to be expanding, for aside from its present and potential textile outlets, it has uses in other fields.

At present, laminated fabrics are undergoing a critical period of large-scale, consumer evaluation. Meanwhile, research among manufacturers continues toward the further development and utilization of polyurethane. One problem, for instance, that the industry recognizes is the need for a white foam (the present shade is tan), which would be more desirable for light-colored knitted constructions.

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erated by a handle outside the machine.

Shrinkproofing Wool. Assigned to the U. S. Department of Agriculture is a patent on a means for improving wool's shrinkage properties by carding with wires which have finely pitted surfaces. These surfaces selectively engage the scale formation of the wool fibers and smooth them without causing excessive fiber damage.

Better Compressive Shrinking. A British dyeing and finishing concern has patented a method for improving compressive shrinkage of fabrics by eliminating or minimizing the usual glazing effect of the heated rollers. Schreiner lines are engraved on this roller in the direction of fabric movement instead of parallel to the roller axis. Other effects are obtainable by engraving the roller in patterned form. Steaming of the fabric may be carried out to further reduce the glazing effect.

Improved Nylon Dyeing. A new chemical treatment which utilizes a nonionic complex organic compound is said to chemically modify nylon, making possible dyeing to a greater depth of shade with a variety of dyestuffs. It is also claimed that the process makes nylon fabrics more breathable, wettable, and free from static electricity charges. Cost of the new treatment is estimated to be from 1 cent to 2 cents per pound of fabric.

Better Water Repellency. An Ohio engineering company has been granted a patent on a water-repellency treatment, based on dextran compounds, for application to garments at the same time and in the same solution in which they are drycleaned. The treatment does not involve the use of elevated temperatures, nor harsh conditions. The treatment is also said to increase abrasion resistance and add to the suppleness and drapability of the material.

Fabric Softener. A new softener for towels and knit goods is being experimentally marketed by a southern chemical manufacturer. Sold as a white cream paste, it is said to give a lofty, soft feel to toweling without yellowing whites or affecting pastel shades.

Silk Chafing Complaints. Chafing of silk organdy (a chalk-like marking on the fabric) is giving headaches to its members, says National Institute of Drycleaning. The cause is extraneous material on the yarn, according to NID, which recommends use of AATCC's standard crockmeter test to establish recommended level of resistance to this condition.

Dyestuff Production Up in 1959. U. S. production of dyes in 1959 was up 20% over 1958 output, the U. S. Tariff Commission reports. Four classes of dyes accounted for more than 70% of production: vats, 28%; sulfurs, 19%; directs, 15%; and acids, 9%. The textile industry uses about three-quarters of dyestuffs production. See accompanying table for details.

Also of Interest to Wet Processors

How efficient is your scouring? ..... Page 54
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Package dyeing Orlon by sponge-core technique 74
Does dyeing affect yarn strength? 102
Printer suggests way to prevent color "leak-in" 103
New equipment, dyes, finishes, and chemicals 107

U. S. Production and Sales of Coal-Tar Dyes, 1959

Class of Application	Production 1,000 lb	Sales Quantity 1,000 lb	Sales Value $1,000	Unit Value[1] per lb
Total	167,966	157,418	202,616	$1.29
Acid	15,699	14,720	27,148	1.84
Azoic dyes and components:				
Azoic compositions	2,691	2,476	3,851	1.56
Azoic diazo components, bases (fast color bases)	1,531	1,412	1,917	1.36
Azoic diazo components, salts (fast color salts)	2,464	2,488	2,697	1.08
Azoic coupling components (Naphthol AS and derivatives)	2,441	2,464	4,850	1.97
Basic	8,054	6,579	15,006	2.28
Direct	25,711	24,919	35,949	1.44
Disperse	6,901	6,647	13,810	2.08
Fiber-reactive	188	174	759	4.36
Fluorescent brightening agents	7,050	6,910	16,887	2.44
Food, drug, and cosmetic	2,112	2,028	9,341	4.61
Mordant	6,655	6,250	8,641	1.38
Solvent	7,228	6,402	9,468	1.48
Sulfur	31,776	30,941	8,653	.28
Vat	47,395	42,959	43,416	1.01
All other[2]	70	49	223	4.55

[1]Calculated on rounded figures.
[2]Includes oxidation bases, ingrain, and miscellaneous dyes. Statistics for these groups cannot be published separately without disclosing information received in confidence.
Source: U. S. Tariff Commission

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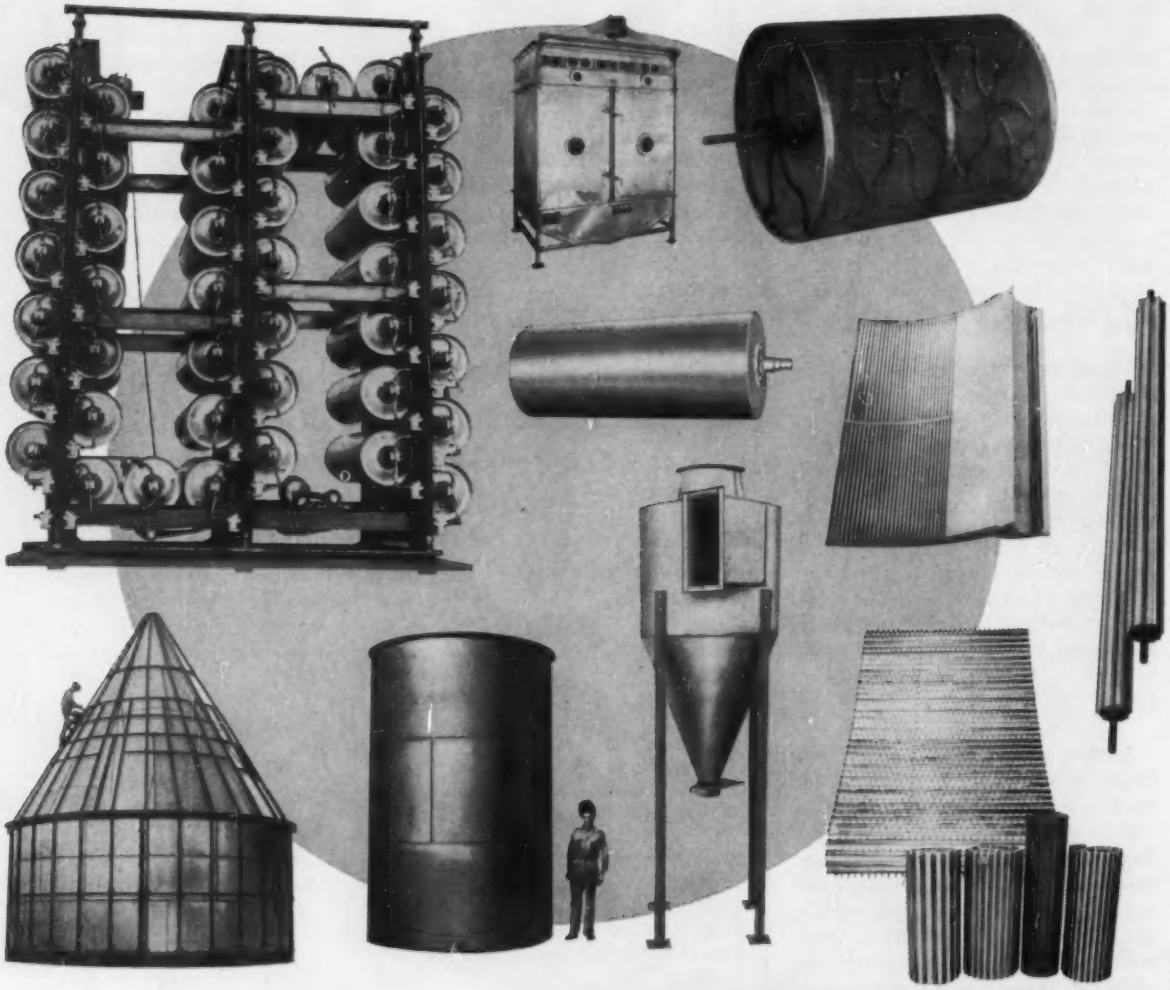

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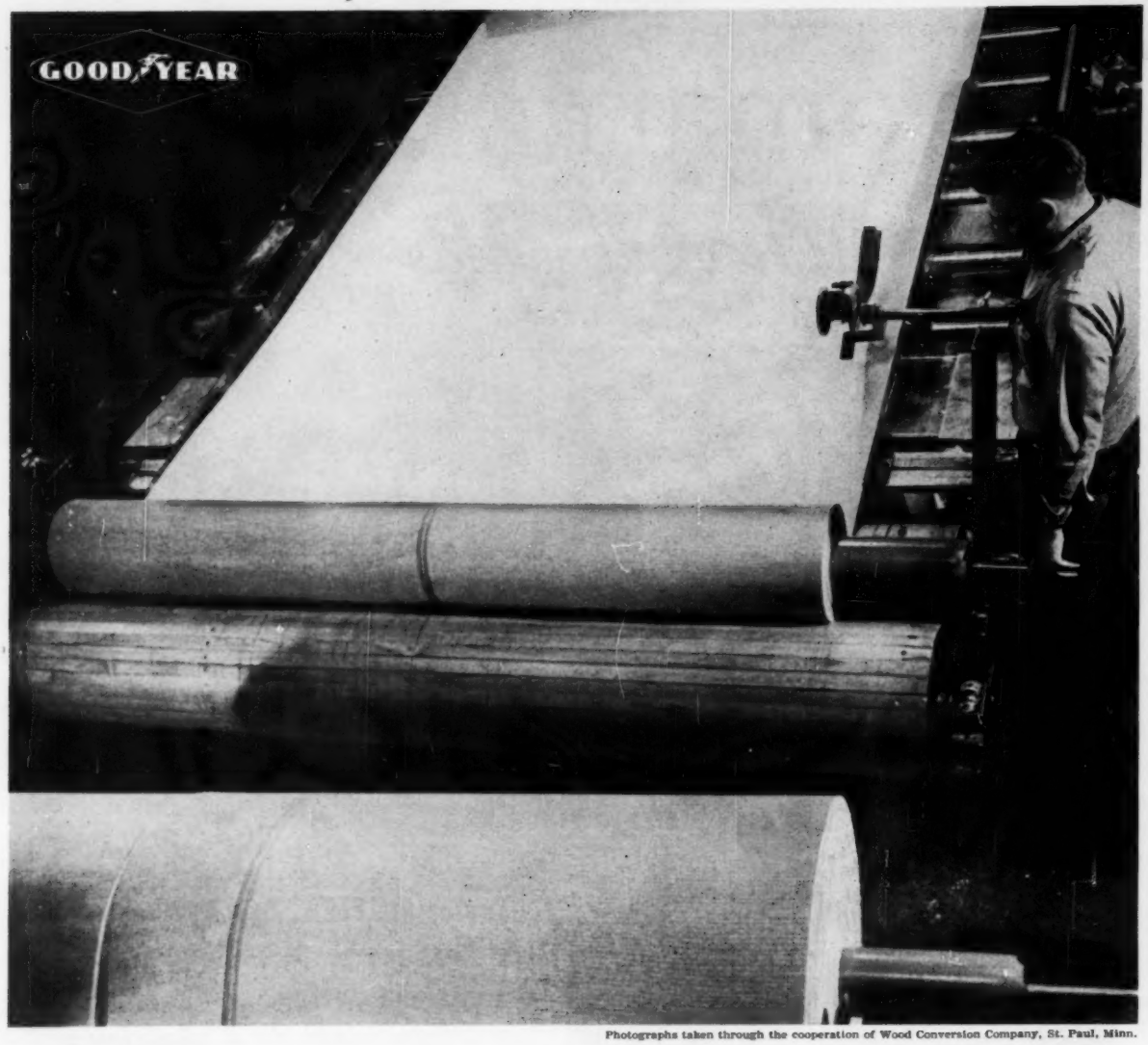

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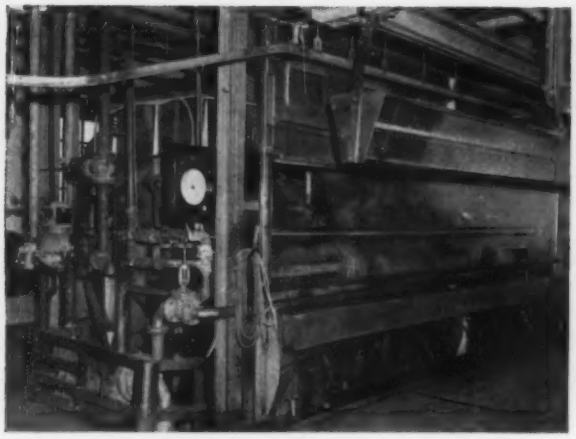

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Fact is, "peroxygen" is a word that Becco uses to indicate that we can tie oxygen onto just about anything.

How come? Well, years of experience in producing Hydrogen Peroxide has produced an affinity between Becco and oxygen — an affinity we have capitalized on to give you compounds that will provide a ready source of oxygen — wherever, however and whenever you need it.

We have a good number of such compounds on the shelves. Quite a few others are in development. Still others are merely in our minds, but we can begin drawing them out if you're interested.

We hope you are interested. But we'll never know — unless you fill in the coupon below and mail it to us. Why not?

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
116 E. 42nd St., New York 17, N. Y.
Dept. TI-D

Gentlemen:
Send me more information about Becco Peroxygen Chemicals.

NAME_____
FIRM_____
ADDRESS_____
CITY_____
ZONE____ STATE_____

Problems in handling Hydrogen Peroxide

Becco's Four-Fold Engineering Service Program — offered free — includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
116 E. 42nd St., New York 17, N. Y.
Dept. TI-B

Gentlemen:
Please tell me more about your Four-Fold Engineering Service.

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WARP DRAWING MACHINES HELP YOU KEEP AHEAD WITH FAST PATTERN CHANGES

Mills which are running fancy patterns, special weaves, short-order exclusives, or novelties are often bogged down waiting on drawing-in of new warps. The use of Barber-Colman Warp Drawing Machines can greatly relieve such situations because of the ease and rapidity with which new patterns can be drawn. Operating at speeds (depending on conditions) of from 2,000 to 5,000 ends per hour, these machines will draw cotton, worsted, wool, or filament and spun synthetics for plain or dobby weaves from a flat sheet, split sheet, double beam, or one-and-one leased warp. Correct selection of drop wire, heddle, and reed dent for each end is accurately controlled by a metal pattern strip punched in accordance with the designer's draft. Machines are made in several sizes with capacities up to 26 harness frames and 8 banks of drop wires. *For details, see your Barber-Colman representative . . .*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

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EASY, FAST CURE FOR "COASTING" FRAMES!

Your roving or spinning frame motor acts as its own brake when used with this

NEW Qwik-Stop CONTROL

"Coasting" frames waste time, material and money. But it's often difficult and expensive to add conventional brakes to existing frames.

This new **Qwik-Stop** electric braking control is the answer. It requires no frame modification. Simply replace your motor starter with this unit and *presto*—you have brakes. A wide variety of braking torque is available by a simple jumper reconnection. Dependable timing of braking cycle with easily adjusted pneumatic timer.

***Write** for Bulletin 8922 which gives the complete story. Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.*

This **Qwik-Stop** unit provides complete control for starting, protecting and braking roving or spinning frames.

SQUARE D COMPANY

wherever electricity is distributed and controlled

The Dayco X7 combines highest resistance to ozone checking and flexing with a unique skin-like surface feel, shown clearly in micro-photo inset. The result is super finger-tip control over roving for perfect drafting of every type of fibre – natural, manmade or blend. Available in all sizes for both short and long apron systems.

The Amazing New Dayco X7 Apron Solves Many Major Drafting Problems

Exclusive, new ingredients add longer life, improve drafting, cut downtime to new lows.

Here's news of a major break-through in apron performance . . . the Dayco X7, with a special new ingredient that greatly increases the durability and the drafting effectiveness of its outer surface.

The Dayco X7 is readily identified by the Dayco triangle and arrow, as well as by the superior performance it gives on every type of drafting frame. Outstanding among its features is the skin-like texture of its outer surface. This improved surface texture made possible by Dayco's exclusive ingredient and processing gives finger-tip control. The result is smoother, easier drafting of all types of fibres and blends.

How well does the Dayco X7 meet other apron requirements?

1. Dayco X7 offers highest resistance to ozone checking.
2. Dayco X7 reduces longitudinal cracking caused by flex (hysterectic loss in molecular strength) to a minimum.
3. Dayco X7 turns without slipping, the bottom apron properly driving the top one without excessive friction.
4. The Dayco X7 inside surface provides the lowest possible coefficient of friction and maximum resistance to abrasive wear.
5. Dayco X7 meets the demand of modern drafting . . . heavier weighting, higher speeds, and higher drafts—so common to newer frames.

The Dayco X7 gives top performance in every one of these respects, and in many others. It drafts all natural and man-made fibres and blends more smoothly and efficiently.

Five years of developmental work by Dayco engineers have made the Dayco X7 a truly superior apron. And more than a year's testing "on the firing line" has confirmed their reports. In tests involving many spindle hours of actual use under every conceivable operating condition, the Dayco X7 has come through with flying colors.

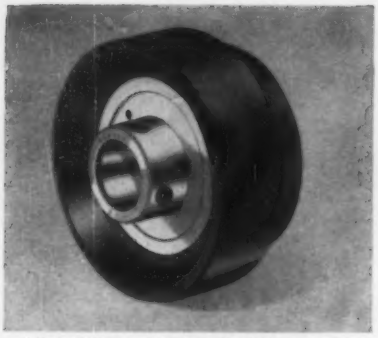
The Dayco X7 is made in all sizes for both short and long apron systems. It is backed by Dayco's high standards of quality and service. It reflects the same careful design and precision manufacture as Dayco standard aprons and other Dayco textile products with which you're already familiar.

Discover the excellence of this outstanding new apron for yourself. Let your Dayco representative help you arrange a trial of the Dayco X7 in your own operation.

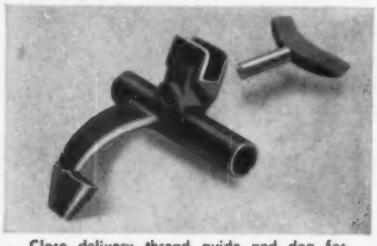
Phone or write Dayco Textile Products Co., 401 South Carolina National Bank Bldg., Greenville, S. C. Overseas plant: The Dayton Rubber Co. Ltd., Dundee, Scotland.

Dayco TEXTILE PRODUCTS CO.

Divison of Dayco Corporation

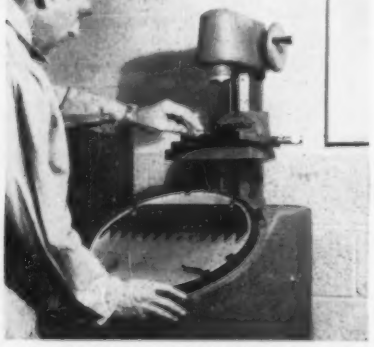


Idler shell on driving roll which contacts the small end of cone on the Model 102. If this shell sticks on the bearing, it will cause hard nosed cones and burned yarns. Therefore, it requires the best in materials and workmanship.



Close delivery thread guide and dog for Foster Model 102. These parts are made from steel forgings which require very accurate and expensive dies. The finish on these parts also plays an important part in their performance.

Profilometer (which measures irregularities in millionths of an inch) used by Foster to test the inside surface of a tube which is part of the Model 102 for processing Textralized* yarn (*trademark of Joseph Bancroft & Sons).



Micro-Projector, an optical testing instrument used by Foster to magnify the silhouette of an object 62½ times and thereby reveal imperfections invisible to the naked eye.

How to Get

FULL VALUE

From Your

FOSTER WINDING EQUIPMENT

We don't have to tell you that in order to get full value from your Foster winding equipment, it must be properly maintained and repaired. The question is, how can you be assured of proper maintenance and repairing?

As to repairs, the first step is to use genuine Foster Repair Parts. Many Foster parts are made of special materials and have special finishes which cannot be duplicated with cheap substitutes. Furthermore, many Foster Parts are scientifically tested, before assembly, with high-priced testing equipment, which is not available in the ordinary machine shop. The illustrations herewith give a few examples of what we refer to.

Second, use *Preventive Maintenance*. By so doing you gain in 5 ways: — 1. Increased winding efficiency. 2. Less wear on and longer life of parts. 3. Better winding. 4. Improved customer relations (if you're a sales yarn mill). 5. Reduction in costly breakdowns. Without preventive maintenance, the same 5 gains turn into losses.

The best way to utilize preventive maintenance is to have a Foster Service Man make periodic inspections of all your Foster Winding Equipment, in conjunction with your Maintenance Supervisor. This Foster Service Man will give you a written report on the condition of your Foster equipment, will suggest improvements in maintenance practice, if necessary, and will recommend replacement of parts when advisable. There is no charge for this service *if* our representative is permitted to fit his visit to your mill into his planned call schedule.

If you would like to know more about getting full value from your Foster Winding Equipment, write for our three booklets: — "Preventive Maintenance", "Why Genuine Foster Parts" and "Emergencies are Costly". No obligations.

A Member of
American Textile Machinery Association

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

SOUTHERN OFFICE — Johnston Bldg., Charlotte, N. C.

CANADIAN REPRESENTATIVE — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. • EUROPEAN REPRESENTATIVE — Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England.

377-D

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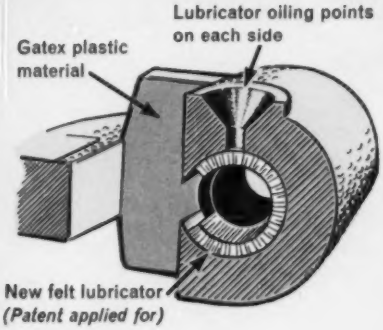
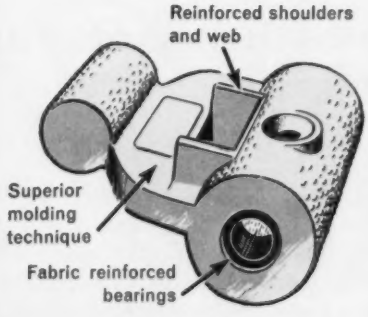
Another product in Gates complete line of Textile Accessories



Exclusive new Gates features!



Latest advance
in plastic drop box pickers!

Less wear on picker bearings and spindle —New felt lubricator (patent applied for) stores oil and dispenses it at an even rate on the spindle rod . . . provides long-lasting lubrication . . . cuts lubricating time. New fabric-reinforced bearings reduce friction and heat and extend the service life of the Gates picker, reducing down-time and replacement costs.

Longer life for picker and stick — All stress points on the shoulders and web of the Gates picker have been reinforced and strengthened for the entire picker stick stroke. As a result there is a minimum of web and shoulder splitting and the picker lasts longer. The wider shoulder design also results in considerably longer picker stick life.

Greater picker impact strength — Gates reversible drop box pickers are made of new Gatex plastic—a dense material highly resistant to impact. They are formed through special molding techniques that eliminate internal stresses, increasing picker life.

These exclusive new Gates features, together, give you longer picker life, and reduced spindle rod and picker stick wear. For complete information, call your nearby Gates Distributor.

The Gates Rubber Company, Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

Gates Distributors are in the YELLOW PAGES

Gates®
The Mark of Specialized Research

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

Gates Textile Accessories

Tex-Hide and Vulco Loop Pickers

Tex-Hide Harness Straps

Thin-Tex, Vulco, Tex-Hide and SuperTex-HideLugStraps

4-in-1 Check Straps
Multi-Check Straps

TPA 904

Here's a "before" and "after" bearing problem solved by **Dixie Bearings**

One of our customers has several units with shafts held by solid housing pillow blocks as shown in "before" picture. Whenever one of these bearings needed to be replaced, the shaft had to be removed. Maintenance costs and down-time were excessive and costly. Our engineers were asked for a solution.

THE PROBLEM: Due to the extremely low base to center of shaft dimension of the original bearing, a conventional split housing, split roller bearing pillow block could not be used.

THE ANSWER: We designed and furnished a special split housing pillow block (see "after" photo) incorporating split bearings and split seals which maintain the original dimensions. These can be installed or replaced on the equipment in a fraction of the time formerly required just to dismantle it.

This is just one of many successful solutions of a tough bearing problem. We can help you solve your bearing problems and supply replacement bearings from the stock carrying branch near you. We're authorized distributors for all nationally known bearings. Call us!

Providing bearing service in the South

DIXIE BEARINGS, INC.

ARKANSAS: Little Rock • **FLORIDA:** Jacksonville • **GEORGIA:** Atlanta • **KENTUCKY:** Louisville • **LOUISIANA:** Baton Rouge New Orleans • **N. CAROLINA:** Charlotte • Greensboro • **S. CAROLINA:** Greenville • **TENNESSEE:** Chattanooga • Kingsport • Knoxville Memphis • Nashville • **VIRGINIA:** Norfolk • Richmond • Roanoke

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Picker Overhauling Is Simple When You Depend On . . .

Aldrich Repair Service

We furnish skilled men for reworking pickers, and can deliver to these men any needed parts within 24 hours in most southern states, and within 48 hours to almost any cotton mill in the United States. This makes thorough overhauling a simple matter. Anything needed for a good job can be had at once, while the machine is down for repairs.

If you do your own overhauling, this speedy delivery service is just as valuable. You don't have to wait for repair parts — they are there when you want them.

We manufacture and install complete blending, opening, and picking systems for cotton and synthetics, and cleaning systems for cotton.

AldricH MachinE WorkS

Greenwood, South Carolina

A USER OF THE NEW "M" TYPE HERR CONICAL RING EXAMINES RESULTS

"Less oil is being used."
"The yarn is cleaner and smoother."
"We are operating at higher speeds."
"There is less yarn breakage."
ALL THIS PLUS
● More Uniform Lubrication Without Oil Waste.
● Longer Traveler Life.
● Longer Ring Life.
● Reduced Maintenance.
● Increased Production.
● Decreased Costs.

Now, "M" Type Herr Conical Rings introduce a new method of lubrication called Seam Lubrication. By the principle of capillary attraction oil finds its way from the reservoir through the top and side seams to the wearing surfaces. The minute seams, so fine that they are hardly visible, control the amount of flow so that every drop of oil is utilized. There is no waste—no oil surplus to contaminate the yarn. The operation is clean. There is no rewicking. Maintenance costs are lowered. Oil consumption is greatly reduced, yet faster spindle speeds are possible without extra wear to ring or traveler.

The "M" type Herr Ring has been thoroughly tested for several years in some of the largest textile plants.

Write today. Let us give you all the facts that lead to greater profits for you.

Oil is Supplied to Both Top and Conical Bearing Surfaces Through Seams.

Oil Flows to Annular Reservoir Within the Ring, Then is Drawn by Capillary Action Through Seams.

The 5" diameter 43/64" face Herr "M" Type Ring has only one oil cup. Herr travelers are specially designed to provide best results with this ring.

HERR MANUFACTURING CO., INC.

310 FRANKLIN STREET • BUFFALO 2, N. Y.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

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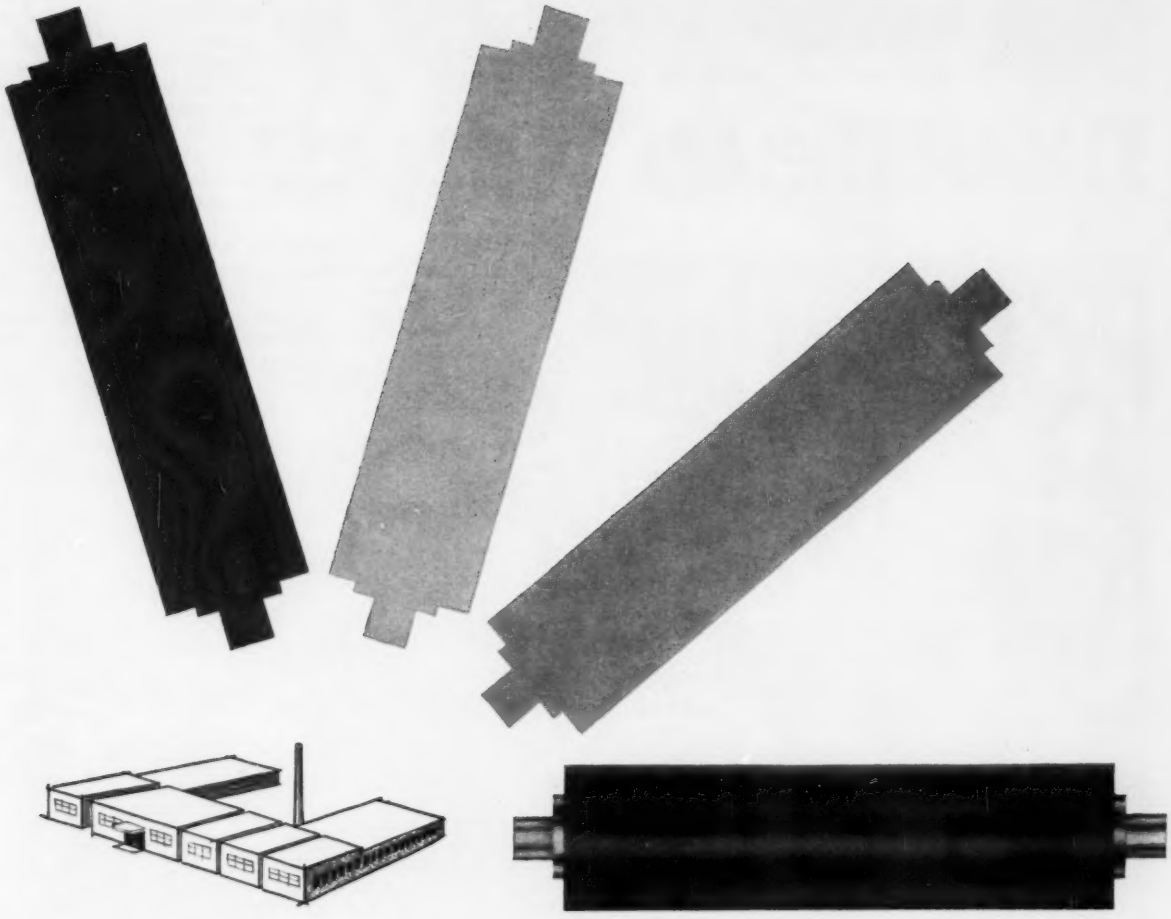


SEALSKIN®

is the slasher roll which, in mill after mill, has given 98% or more longer life than other rolls. Ask your S-W Sales Engineer for proof of this claim.

75th YEAR S-W INC.

more yards from every cover because of technical leadership

STOWE-WOODWARD, INC.

Newton Upper Falls, Mass. *Neenah, Wisconsin* *Griffin, Georgia*

on the West Coast • HUNTINGTON RUBBER MILLS, INC. • Seattle, Washington • Portland, Oregon • Port Coquitlam, British Columbia, Canada

Production & Quality

two big reasons for buying the Pacesetter Slasher

PRODUCTION: West Point's PACESETTER Slasher is achieving drying rates of over 1600 pounds per hour (dry unsized weight) on 9-cylinder units — and with absolutely no sacrifice of quality for speed. Speeds are as high as 175 yards per minute with conventional creels (higher on some special applications), and operating speeds of 100 to 140 yards per minute are commonplace. Excellent warps come off these slashers with superior control of tension and size pick-up, whether you are slashing cotton, spun synthetics, filament synthetics, worsted and synthetic blends . . . canvas, print cloth, satin, or suiting material.

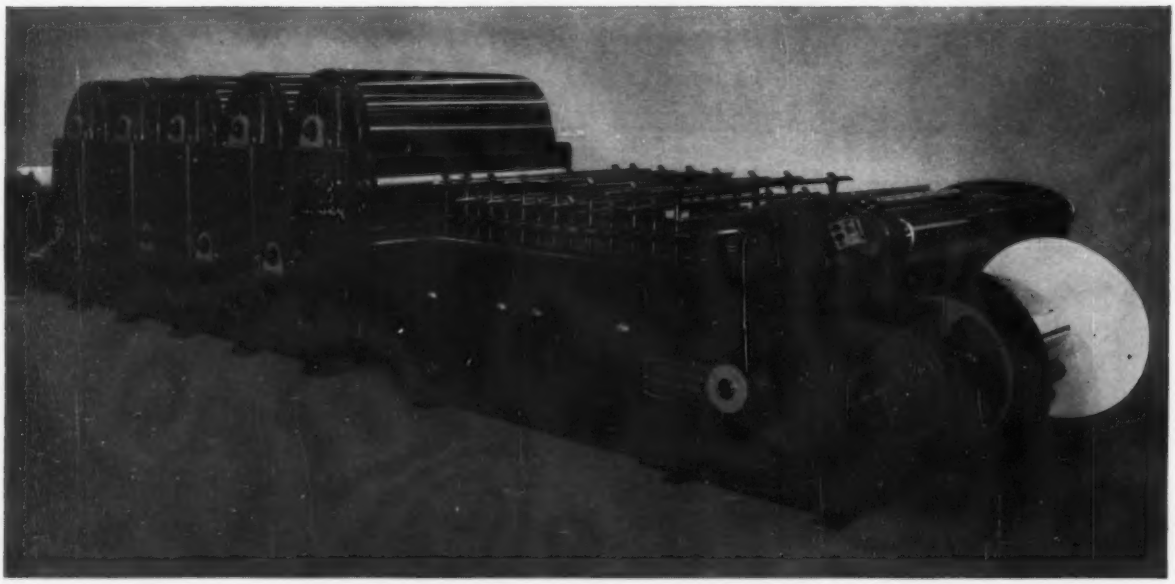
QUALITY: The PACESETTER is built to last, with an extraordinarily massive cast iron frame with smooth uncluttered sides, extra heavy-duty 2¼-inch journals with self-aligning cylinder bearings, the largest sprockets for longer life (or optional V-belt drive), patented wide-open design for superior access to the warp, convenient lift-out panels, covered steam and condensate manifolds, and other built-in quality features.

NEW SALES RECORDS: West Point's Multi-Cylinder Slasher has broken all sales records since 1955 and during the past two years more than 150 PACESETTERS have been sold; more than 300 West Point Multi-Cylinder slashers sold in 5 years: An accomplishment made possible only because in installation after installation the West Point PACESETTER has proved to be the industry's leader in production — its standard of quality.

Any way you look at it — it's worth your while to get more information on West Point's PACESETTER Slasher. Ask us . . . or ask your neighbor who runs one!

West Point
Foundry & Machine Co.

WEST POINT, GEORGIA



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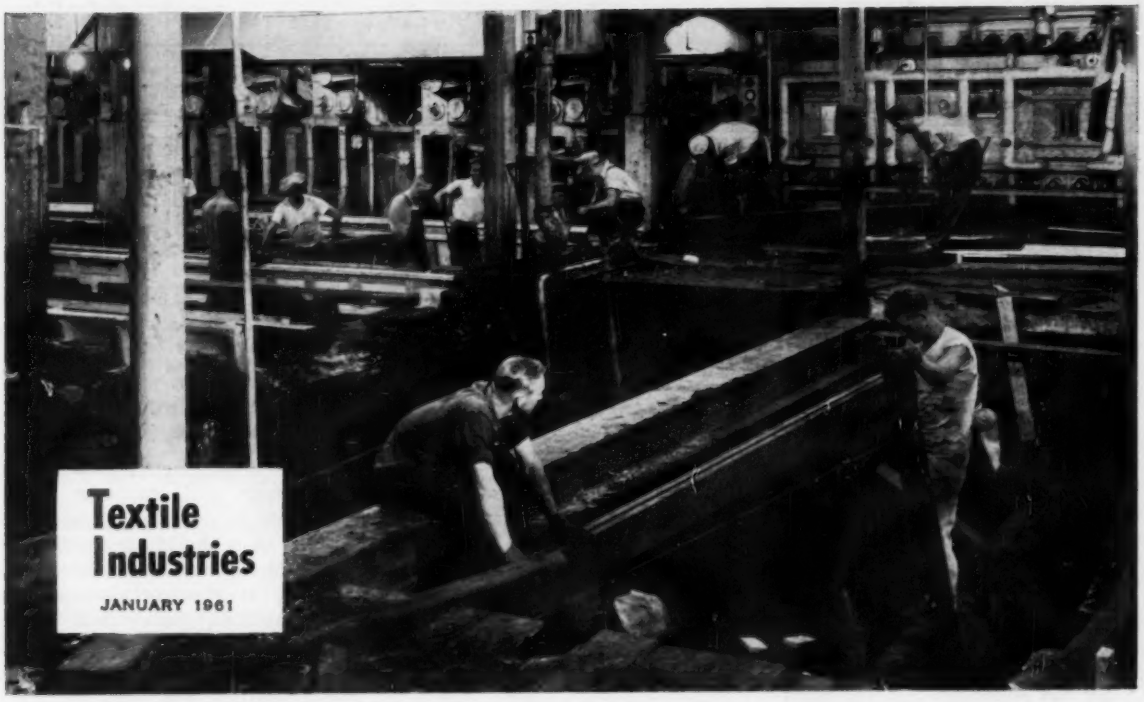
THEY CLASSIFY MAINTENANCE



Job classification system tells Chatham's management where maintenance dollar goes

Frequently management calls on the maintenance department to perform duties, functions, and jobs that can hardly be called "maintenance." When the cost sheet is examined each year, so-called "maintenance" costs may appear entirely unrealistic unless someone has an account of where and for what the money was spent.

The accompanying description of job classifications used at Chatham Manufacturing Co. indicates one satisfactory way that management's questions may be answered in justifying expenditures and activities of the maintenance department.

by Claude B. Hart
Chief Engineer
Chatham Manufacturing Co.

Exclusive

A NEW system of job classification numbers is incorporated in our present work order system at Chatham Mfg. Co. Job classification numbers provide us with much information concerning shop work which was formerly unavailable. In addition to aiding in the control of shop labor they enable the engineering department to present a much clearer picture of its maintenance function to top management for better understanding.

Essentially the job classification numbers are used to answer questions such as the following:

1. How much of the shop labor is used for maintenance?
2. How effective is preventive maintenance in reducing the amount of shop labor required?
3. How much of the shop labor is used to *improve* existing facilities, as opposed to maintaining them?
4. What portion of shop work is planned and what portion is emergency work? Is there improvement in this area?
5. What additions or deletions

SHOP LABOR - JOB CLASSIFICATION REPORT

DECEMBER 1 TO DECEMBER 31

	PRODUCTION MACHINERY	BLDGS. & GROUNDS	UTILITIES	EQUIPMENT	OTHER	TOTALS	%	CUM. TOTALS	%
REPAIR ROUTINE	422.0	199.0	79.8	71.1					46.5
EMERGENCY	78.9	5.2	23.8	17.6					7.3
ALTER & IMPROVE	182.7	119.3	28.4	15.1					19.7
NEW INSTALLATION	115.3	13.7	32.6	86.2					15.0
RELOCATE	1.6		4.1	.4					—
REMOVE	2.9		9.2	.3					.8
MISCELLANEOUS				1.7	189.3				10.5
TOTALS									

Figures on this "Shop Labor Job Classification Report" are not actual, but serve to indicate how the report may appear. While the figures are approximate, they do give some idea of the actual division of maintenance work into the various classifications.

have been made to capital equipment so that the plant appraisal can be kept up to date?

The answers to these and many other questions will give a more complete and clearer picture of shop work than has ever been obtainable in the past.

By the Numbers. Job classification numbers include three digits:

The first digit tells *how* work was done—emergency or routine.

The second digit tells *on what* work was done—machinery, buildings, etc.

The third digit tells *why* work was done—maintenance, alteration, etc.

Numbers are derived from the following schedule:

First digit:
1. Routine work
2. Emergency work

Second digit:
1. Production machinery
2. Buildings and grounds
3. Utilities
4. Equipment
5. Other

Third digit:
1. Repair or maintain
2. Alteration or improvement
3. New installation
4. Relocate
5. Remove

For example:

133 would be the classification number for routine or planned work on utilities and for a new installation.

211 would be the classification number for emergency work on production machinery and to repair it.

Which Classification? As in most systems of this type, the majority of classification numbers can be readily assigned. There will be borderline cases. The following comments indicate guide posts for coding classification numbers to these borderline cases:

First Digit — how. Regarding routine or emergency work there is little doubt. Emergency work is work which must be done as soon as it is discovered. It requires an immediate and unavoidable change in plans.

Second Digit — on what. Production machinery includes all accessory equipment such as valves, piping, electrical switches, pumps, tanks, instruments, fans, foundations, etc., connected to or a part of *a single* or at the most, *two* production machines. If the machine were moved and the item involved would move with it to its new location, it should be classified as production machinery.

Buildings and grounds: Anything that is a part of or becomes a part of a building should be classified as buildings. Sprinkler systems, reinforcing (except for one machine), permanent partitions, stock bins, floor finishing, painting of buildings, sealing roof leaks, built-in shelving, etc., fall in this category.

Utilities: Main distribution lines for air, water, electricity, and chemicals, which serve more than two machines, should be classed as utilities. Also main storage tanks, air compressors, heating, air conditioning, general ventilating equipment, and transformers fall in this category. Also to be included is lighting other than that for a particular machine.

Equipment: All necessary items not attached to machines but necessary to their operation—parts bins, conveyors and all conveying equipment such as wagons, flats, trucks, loom beams, fork trucks, hoists, and elevators—are classed as equipment. Also to be included are desks, tables, intercoms, cabinets, and the like.

Other: Any items which cannot be classified in one of the above.

Third Digit—why. Repair or maintain: This number is used

where the *primary purpose* of work is to remove worn, broken, or corroded parts and either repair or replace them.

Alteration or improvement: This number is used where the *primary purpose* is to change or improve the operation of existing equipment. In doing this work it may be necessary to add or remove certain component parts of machines, but if the main purpose is to improve or change the operation of existing facilities, then the work falls in this category.

New installation: This number is to include work done in adding new machinery, buildings, etc., which have not existed before. It also includes replacement where this replacement involves the *major or primary part* of a machine, such as the replacement of a worn-out air conditioning compressor. This is the major component of the system and it should be treated as a new installation.

Relocate: This number includes work where the *primary purpose* is moving machinery from one location to another and installing it in essentially the same condition.

Remove: This is to include work done where the *primary purpose* is to take out machinery and remove it from operation—either to storage or junk.

Any major job will probably include some work in more than one of the above categories. The *entire job* should be classified according to the *primary purpose*. For example, if a new machine is to be added and it is necessary to move other machinery to make room for it, the entire job should be classified as a new installation—3 in the third digit.

If there is *any* doubt concerning the correct classification number, operatives are instructed to avoid guessing and to contact the maintenance center and request a classification number.

How window replacement benefited a denim manufacturer

■ AT CANTON Cotton Mills it has been found that the proper balance of humidity and heat is much easier to maintain after conventional windows and sash in this denim manufacturer's two Canton, Ga., plants were replaced with glass blocks made by Pittsburgh Corning Corp.

Charlie K. Cobb, vice-president and general superintendent, says: "Since we installed the glass block, both our heating and humidifying systems have been more efficient. We've had much greater success at achieving a year-round average humidity condition in our No. 2 spinning room, and we've also stabilized heat and temperature levels in our carding, spinning, and weaving rooms and other key areas. As a result, work stoppages caused by heat and humidity imbalance have been greatly reduced."

The first glass blocks were installed at Canton Cotton Mills in 1947 to improve illumination and temperature control of the basement laboratory in the administration building. "That first installation was so satisfactory that it led to our present program of eventual total replacement, begun three years ago," Mr. Cobb says. In September, 1960, about 85 per cent of the old windows in the two plants had been replaced with glass blocks—467 bays, 115 in Plant No. 1 and 352 in Plant No. 2.

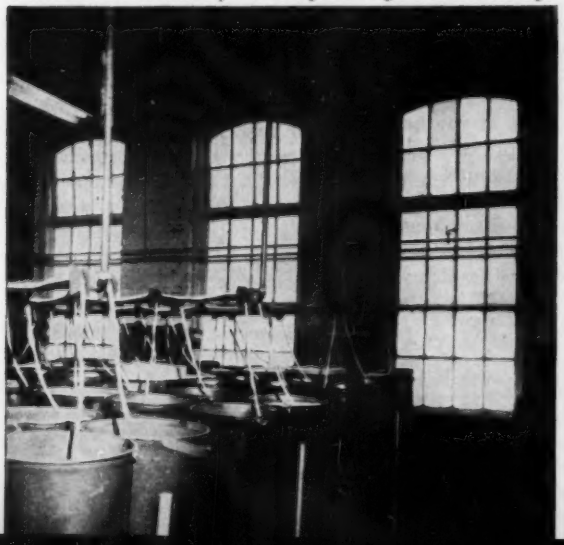
Other Benefits. Insulating qualities of the block, equal to that of a 12-inch concrete block wall, also have made it possible to cut plant heating costs. However, Mr. Cobb points out, estimates of savings are difficult to make since the plant boiler systems both heat buildings and supply steam for other processes.

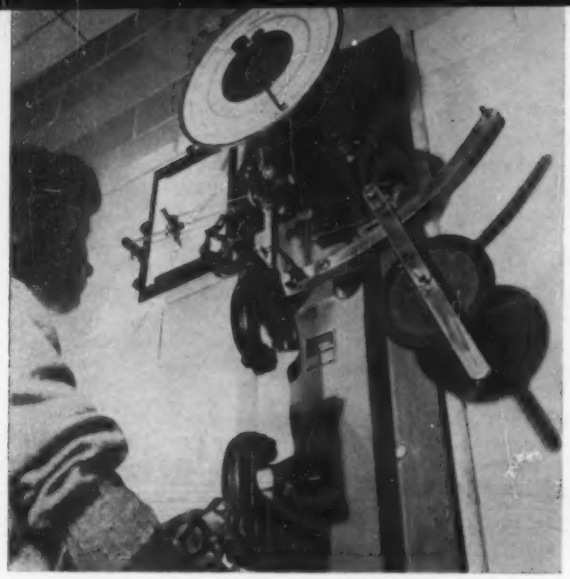
Use of the glass block brought substantial maintenance savings. The old sash had to be painted every five years, reglazed every two to three years, and periodically replaced. The glass block requires only periodic cleaning with compressed air and a dust mop and occasional painting of the concrete sills.

Improved appearance of the plant and greater employee comfort were two more direct benefits of the installation. Previously, conventional window panes on the east and west sides of the plants were painted with

Continued on page 129

How glass blocks have improved lighting in the card room at Canton may be seen by comparing the before-installation photo at left with the after-installation photo at right. Less glare and better light diffusion are attributed to a green fibrous glass screen sandwiched between the two halves of each block. Light-diffusing blocks are used from floor to eye level; remainder direct light toward ceiling.





How you can

The effect of yarn properties and fabric structure on the grab breaking strength of fabrics—a statistical evaluation

by Jack E. Sands, Herschel W. Little, and Louis A. Fiori
Southern Regional Research Laboratory[1]

and William A. Faught
Marketing Economics Research Division, Agricultural Marketing Service

Exclusive

IT HAS long been recognized by leaders in the cotton textile field that there exists a serious lack of information upon which predictions can be made of the levels of certain fabric properties based on the properties of the constituent yarns. Many fields of engineering have handbooks that provide tables which show the necessary "building-blocks" to do the job and what can be expected in the end product. Not only is this not the case in textiles, but also there is a complete absence of anything like the uniformity of principal properties of the starting materials that is normal to other fields.

It is a tribute to the cotton textile manufacturers that they have, over the years, done an excellent job of providing end-products whose properties are sufficient to end-use demands. This has been possible, generally, since it has long been known that the physical properties of fabrics depend to a large extent on the structure of the fabric (ends and picks per unit area, weave, yarn size, and twist) as well as on the properties of the fibers used.

However, it has only been within the past few decades that emphasis has been placed on engineering fabrics for specific end uses. Perhaps the earliest and most widely known work in this field was done by Peirce (14, 15)[2], in which formulas were developed for finding the cover factor and other important structural details of a fabric. Essam (8) in an investigation on the influence of yarn and weaving structure on the physical properties of fabrics found a definite relationship between the breaking strength of a fabric and its structure.

A comprehensive evaluation of the relationship between the structural geometry of a textile fabric and its physical properties has been made by Backer, et al (1, 2, 3, 4, 5, 6). Schiefer, et al (16, 17), showed that the breaking strength and elongation at rupture of fabrics vary approximately with the breaking strength and elongation at rupture of the yarns from which the fabric was woven. They concluded that these fabric properties, in addition to fabric assistance, "are greater in the plain weave than in the 2/2 basket weave."

The underlying philosophy of the concept of engineering the design of textile structures, including the contributions made by fiber properties and fabric structure to fabric properties, has been covered expertly by Hamburger (9). Another excellent treatment has been made (7) of this subject which had as its purpose the delineation of tools needed by the fabric designer and procedures to be followed in designing fabrics with predetermined functional properties.

As a step in developing basic relationships between yarn and fabric properties advantage was taken of data available from a previous study by the Cotton Branch, Production and Marketing Administration (10, 11, 12) and the Market Organization and Costs Branch, Agricultural Marketing Service (13), and of experimental fabrics produced at SURDD, rather than attempting large-scale weaving and testing programs.

Materials and Methods. Through proper liaison, data on yarn and fabric properties of approximately 105 different fabric constructions, which were a part of a previous study (10, 11, 12, 13), were made available from the present files of the Marketing Economics Research Division of the Agricultural Marketing Service. Comparable data were available on approximately 40 fabrics of standard construc-

[1]One of the laboratories of the Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture. It is located at New Orleans, La.

[2]Numbers in parentheses designate references at the end of the paper.

engineer for fabric strength

tions which had resulted from investigations at this Laboratory. Since values on the grab breaking strength of fabrics were the only strength data available from the earlier studies, the analyses were necessarily restricted to the evaluation of the relationship between skein strength and fabric grab breaking strength.

The fabrics used in this investigation included wide ranges in fabric structure, such as yarn number, weave, and ends and picks per inch. In order to make comparisons of physical properties of these widely varying fabric types, these properties or characteristics were reduced to common bases. The principal physical properties and the definition of their common bases are:

$$\text{Skein Break Factor} = \text{Count-Strength Product}$$

$$\text{Grab Break Factor} = \frac{\text{Grab Strength}}{\text{No. of Threads per Inch/Yarn Number}}$$

$$\text{Warp Cover Factor} = \frac{\text{No. of Ends per Inch}}{\text{Square Root of Yarn Number}}$$

$$\text{Filling Cover Factor} = \frac{\text{No. of Picks per Inch}}{\text{Square Root of Yarn Number}}$$

Just as with the skein break factor (count-strength product), the grab break factor reduces grab break values, regardless of fabric structure, to a common basis of pounds of break per unit weight of the textile material tested. It was hoped that the reduction of various elements of fabric structure to a common basis would make possible the development of relationships between yarn and fabric properties that could be expressed in terms of simple prediction equations.

Analysis of Data. Simple regressions and correlations for selected yarn and fabric properties reduced to a common basis are shown in *Table 1.* The simple correlations included 145 fabrics of which 104 were plain woven with the remainder being sateens, twills, and oxfords.

The correlation coefficients and beta coefficients for multiple correlations are shown in *Table 2.* The calculations included data from 122 fabrics of which 87 were plain woven with the rest being sateens, twills, and oxfords.

Of the plain woven fabrics included in the simple correlation, seventeen could not be included in the multiple correlation because of the absence of one or more of the pertinent data covering the five variables included in the analysis. Similarly, data from an additional six of the fabrics of other weaves were deficient in some respect, such that of the 145 included in the simple correlations only 122 could be included in the multiple correlation.

Results and Conclusions. Correlation coefficients for skein break factor with grab break factor (warp) of 0.54 for all included weaves and 0.52 for plain weave fabrics were the highest of any of the simple correlations *(Table 1)* except the one for the sum of warp and filling cover factor vs grab break factor (filling—plain weave). None was high enough to show a close relationship. However, all correlation coefficients, with one exception, were significantly greater than zero at the 99 per cent level, indicating a high

TABLE 1. Correlation Coefficient for Simple Correlations of Selected Yarn and Fabric Properties[1]

Relationship	Plain Weave	All Weaves
Skein Break Factor vs Grab Break Factor (Warp)	0.52	0.54
Skein Break Factor vs Grab Break Factor (Filling)	0.50	0.47
Sum of Warp and Filling Cover Factors vs		
Grab Break Factor (Warp)	0.36	0.51
Grab Break Factor (Filling)	0.65	0.43
Ratio of Grab to Skein Break Factor (Warp)	0.07	0.34
Ratio of Grab to Skein Break Factor (Filling)	0.41	0.14

[1]All values converted to common bases.

TABLE 2. Correlation and Beta Coefficients for Multiple Correlations of Grab Breaking Strength with Yarns Per Inch, Skein Breaking Strength, Yarn Number, and Crimp for 122 Fabrics (Plain, Sateen, Twill, and Oxford Weaves) and 87 Plain Woven Fabrics

	Plain Weave		All Weaves	
	Warp	Filling	Warp	Filling
Multiple Correlation Coefficients				
Grab Breaking Strength	0.94	0.93	0.83	0.81
Beta Coefficients[1]				
Yarns Per Inch	1.31	0.95	0.75	0.77
Yarn Number	-0.82	-0.82	-0.47	-0.60
Skein Breaking Strength	0.51	0.75	0.52	0.83
Crimp	0.05	0.05	0.12	0.01

[1]Standard partial regression coefficients.

probability that there is some association among these variables. The correlation coefficient for the sum of warp and filling cover factors vs the ratio of grab to skein break factor was the exception, which was insignificant.

Because the correlation coefficients from the above simple correlations were low and because several of them contained more than one source of variation, it was decided to use the separate elements comprising the variables in multiple correlation analyses. The results of these analyses are shown in *Table 2*.

The multiple regression effects of yarns per inch, yarn number, skein breaking strength, and yarn crimp on grab breaking strength of fabrics were computed separately for warp and filling directions both for plain woven fabrics and for all weaves available for inclusion in the analyses. The size of the beta coefficients included in the table ranks each independent variable in the order of the importance of its effect on fabric grab breaking strength.

In three cases, yarns per inch ranked most important. Yarn number ranked second in both warp and filling directions for the plain weave fabrics but third in all weaves. Skein breaking strength was third most important for the plain weave fabrics, second for the warp yarns of all weaves, but ranked first in importance for filling yarns of all weaves. Yarn crimp was the least important in all cases.

The regression of grab strength on the four independent variables for the 87 plain woven fabrics are expressed in the estimating equations shown below:

For warp direction:

$$X_1 = 8.96 - 1.05X_2 + 0.84X_3 + 0.31X_4 + 0.24X_5$$

For filling direction:

$$X_1 = -10.19 - 0.81X_2 + 1.07X_3 + 0.41X_4 + 0.24X_5$$

Similarly, for the 122 fabrics including plain, sateen, twill, and oxford weaves:

For warp direction:

$$X_1 = -32.24 - 1.56X_2 + 1.26X_3 + 1.49X_4 + 0.47X_5$$

For filling direction:

$$X_1 = -17.80 - 0.82X_2 + 1.17X_3 + 0.10X_4 + 0.31X_5$$

where:

X_1 = grab strength

X_2 = yarn number

X_3 = yarns per inch

X_4 = crimp

X_5 = skein breaking strength

All the data derived from plain woven fabrics available in this Laboratory are included in the computations upon which these equations are based and, therefore, cannot be used as a basis for testing their accuracy for predicting the grab breaking strength of fabrics. Since the plain woven fabrics included in the analysis covered the range from tobacco shade cloth to high count lawns and broadcloths, and the other weaves included twills, oxfords, and sateens —some of both carded and combed —it is felt that these equations can be used for a first approximation of the relationship of the included fabric structural characteristics to the grab strength of the resultant fabric.

Acknowledgments

The authors are indebted to William J. Martin, USDA, Extension Specialist, Cotton Utilization, who initiated the liaison which made available the data from the files of the Agricultural Marketing Service; particular thanks are due Misses Audrey Castillon and Lorraine Leitz for performing the large amount of statistical calculations to these evaluations.

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How efficient is your scouring?

■ A RESEARCH technique has been developed by Fabric Research Laboratories to improve the efficiency of scouring synthetic fabrics. The technique requires a spectrophotometer having a resolution in the 0.5-5 millimicron band or better, which is equipped for ultraviolet reflectance measurements.

Most, if not all, of the contaminants found on synthetic fibers are detectable in the U.V. range. They fall into four classes: (1) antistatic agents applied in fiber extrusion, (2) spinning lubricants, (3) warp sizes, and (4) waxes sometimes used to facilitate weaving.

The developed technique for determining optimum scouring conditions was described last November by Joseph S. Panto of FRL in separate meetings of the Niagara and Quebec Sections of AATCC and CATCC. Synthetic fabric finishers have a tendency to overscour to insure complete removal of contaminants, Mr. Panto explained.

The procedure is first to take a U.V. reflectance curve of a thoroughly cleansed grey fabric. This curve will serve as standard for the fabric. Then, through experimentation in the laboratory, a scouring formulation and optimum conditions are established. At varying times during the experiments the fabric is removed and a U.V. curve taken. When the curve becomes identical with the standard, the fabric can be judged as being clean.

One word of warning was offered, however. A standard curve of each fabric construction must be taken because geometric variations in yarn and fabric structure may affect the curve.

A new department begins in this issue on page 29:

COLORING, BLEACHING, AND FINISHING DEVELOPMENTS

Georgia operating executives discussed

link-type parallel motions

Staff report

Linkage-type parallel on an X-2 loom nearing finish of power sweep.

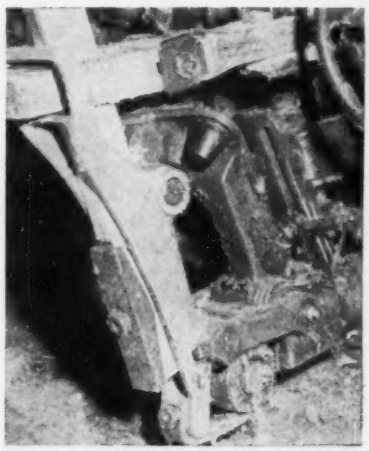
They also talked about:
Humidity control practices
Loom-wound filling
New-type shuttle check
Plastic loop pickers
XD-type pick cams

THE MEN who translate company plans into action, the operating executives, found much mutual ground in their weaving discussions (for the slashing portion of the meeting, see TI for December 1960, p. 88) in such topics as parallel motions, shuttle checking, humidity control measures, etc. The linkage-type parallel, because of its control over power, its ability to keep picker flight true and "parallel," etc., proved a topic of great interest.

Link-Type Parallels. Mill experience with this type of parallel motion ranges from the lukewarm to the enthusiastic, with the latter appearing "almost without exception." The only plant displaying a lack of enthusiasm, *Mill O*, has been running thirty 82" X-2 looms for seven months without noting a difference in loom efficiency or cloth quality. *Mill B* sums up its experiences with a terse "Our experience is limited, but the small number of looms that we have with this parallel have given good results."

The discussion turned in by *Mill H* seems most typical of the results reported. That firm has 320 50" X-2 looms operating with the motion, and of that number 100 have been in operation for two years; 120 have been running for 1½ years; and 100 for six months. Plans include equipping still more looms.

In summary, the firm lists six advantages that are echoed in varying degrees by the other mills entering the talks: (1) improved shuttle flight; (2) better shuttle boxing; (3) fewer warp and filling stops; (4) fewer mechanical stops; (5) lowered maintenance requirements; and (6) a reduction in supply costs.



Front view of the parallel motion shown above. Note bumper, fixed lug height.

The firm believes the No. 14 shuttle check gives the best checking performance on looms equipped with the linkage-type parallel. Plastic shuttles are used on all the above looms. The firm did not increase loom speeds.

But *Mill J*, which has operated

349 looms with the linkage parallel for 3½ years, has been able to increase the speed of some of its X-2 looms by 10 ppm.

At *Mill N* the parallels were installed on looms equipped with dogwood shuttles. A later change to plastic shuttles brought a need for less loom power, a situation that necessitated buying additional power arms. The firm reports an upsurge in maintenance costs, due partly to the heavier shuttles and partly to the parallels making it necessary to replace worn parts.

While reporting that maintenance costs are down because of using fewer picker sticks, check straps, etc., *Mill K* experienced excessive lug strap wear and observed that the bearing joining the power arm with its connector seemed too frail for the task. The firm noticed the greatest "improvement" on looms with the largest number of harnesses.

Humidity Control. Most of the plants resort to sling psychrometers as checks for humidity control systems, and this pattern seems true regardless of the type of humidifying system used. By and large, too, the firms have deposited responsibility for system maintenance and regulation in the hands of shop, standards, or special humidifier crews.

Regulation is largely made through liaison between the weave room personnel and the department responsible for the maintenance and regulation. The few written reports kept are in the nature of periodic checks, possibly as double checks on room humidity and recording equipment. *Mill P* has weave room personnel make adjustments.

Loom-Wound Filling. The one plant, *Mill N*, having experience to report on quilling filling at the loom operates 100 (44″ side-fork X-2) looms on Type IV work clothing. The cloth, a 3/1 twill, has 13.25s filling, 15s warp (108 x 56, 1.39 yd/lb), is woven under efficiencies ranging from 93.50 per cent to 94.00 per cent. Seconds range from 3.5 per cent to 7.00 per cent (average is 5.25). Ninety-eight of the units operate at 184 ppm and use 8″ quills; two looms are using 7⅜″ quills and E-section shuttles and run at 192 ppm. Mispicks average one per 125 yards, range from 90 to 165 yards. Maintenance costs averaged $0.05663 per unit over a 12-week period.

"How many fixers do you use on them?" someone asked.

"Only one, and he takes care of them over our three-shift operations."

TABLE 1

Speeds and Sizes of Looms Fitted with No. 14 Shuttle Check

Mill	No. of Looms	Width (″)	Speed (ppm)	Loom model	Remarks
A	200	60	160	X-2	Eliminated picker stick breakage, boxing difficulties
B	—	90	130	XP-2	Acceptable results, will try on other looms
	—	120	102	XL	
F	119	50	—	X-2	Harder to box shuttle
	45	60	—	X-2	
G	3	82	127	XL	The endless strap part is equal to the life of the conventional strap
H	320	50	173	X-2 X-2	Very good. Lengthens life of pickers, picker sticks, binders, check straps, etc.
I	39	60	163	X-2	Running and boxing very good
	55	50	172	X-2	
J	—	82	154	XP-2	Very satisfactory
O	150	82	—	XP-2	Satisfactory

New-Type Shuttle Check. The No. 14 shuttle check, judging from the response, is strictly satisfactory. Those mills that have given it its longest test are most forceful in their okays. *Mill F* reports longer shuttle check life and more positive boxing but finds shuttles are somewhat harder to box.

The topic heading asked for cost comparisons on such items as picker sticks, etc., consumed before and after the installation, but the returns were too spotty for conclusions. Not enough plants have used the units long enough for such an appraisal.

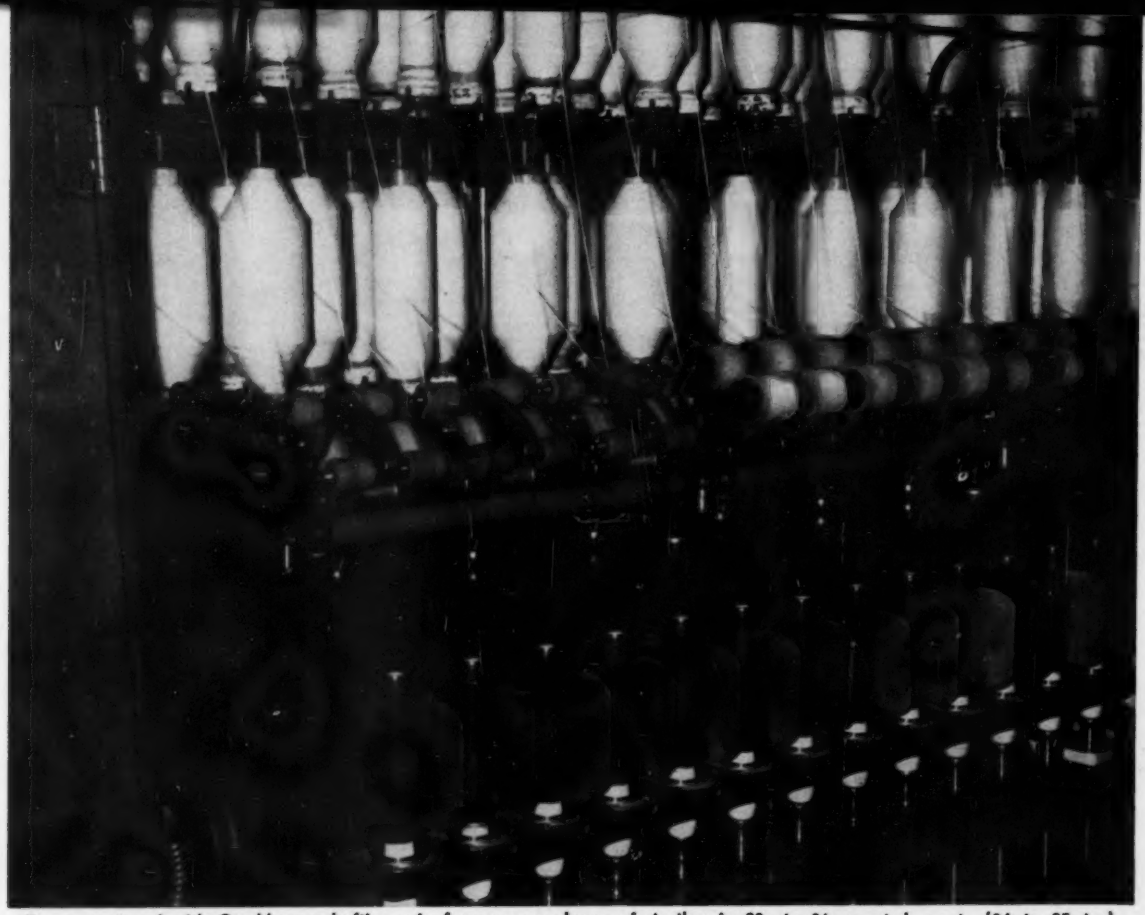
But *Mill I* is experiencing a much lower replacement cost among binders, pickers, and picker sticks as a result of the new checking system. *Mill H* cleared up a troublesome situation on one group of 100 looms (50″ X-2) where efficiency and morale were low and seconds high by installing the check. See Table I for loom speeds, sizes, and number.

Plastic Loop Picker Life. The life of the plastic loop picker, compared with the conventional picker, is certainly an enigma. Two firms report such pickers giving from four to five times the normal life of the conventional number, but the balance of the mills generally vote "nyet" (no)—*Mill H* pretty well expresses the group sentiments: "We have tried every kind that has been mentioned to us, and they ran anywhere from one day to seven months."

The firm added that several of the brands looked promising, but they were hard to keep on the stick correctly. Plastic drop-box pickers fare better.

The five plants that mention using this type (one gathers that only those five plants of the group do use this picker) report results ranging from "showing up favorably" to a figure a flat four or five times the life of the conventional counterpart. *Mill Q* attributes much of the longevity to replacement bushings used at points of great wear.

XD-Type Pick Cam. Three mills have used a pick cam referred to as the "new-type" and with good results. *Mill A* has run them on 12 looms for a few months "without any trouble." *Mill H* is running them on two looms and believes the pick is much harder than the older ones gave. *Mill I* is running them on 55 looms and reports "the cam is satisfactory with everyone concerned at our plant."



Frames equipped with Casablancas drafting spin four-ounce packages of Acrilan in 28s to 36s worsted counts (34 to 25 tex).

How a premium yarn mill spins Acrilan

Nylon and Orlon staple are also processed on cotton-type machinery

Staff prepared Exclusive

ONE MILL, in producing premium yarns from man-made fibers, runs 3-d, 1½" staple Acrilan with six ends up at both breaker and finisher drawing and maintains 60% to 70% rh in the card room.

Using cotton-type machinery primarily, this plant runs 50- to 55-grain card sliver from pure mixes. Thus, there is no blending as such, but some leveling, evening, and interblending is accomplished at drawing to take care of any variations present in the fibers.

Roving is made in 2.6 to 2.75 hank in one process on double-apron 10" x 5" frames. Double-apron spinning turns out four-ounce bobbins of 28s to 36s (worsted counts).

Winders produce 2½-pound cones. Sometimes, when Orlon is being run, the operatives find it necessary to reel off a couple of yards to get rid of slack twist before tying the end, because Orlon doesn't set as quickly as do some other synthetic yarns. The difference is evident when an end is put up at the winder.

Humidity is not critical on Acrilan, and anywhere from 50-70% rh is satisfactory; however, whatever figure is decided upon should be retained to minimize count variation.

Acrilan is the easiest fiber to run, according to experience at this mill—Orlon, Acrilan, and nylon have been run extensively here. However, only one fiber is in production at any given time (to prevent cross contamination). All three of the fibers are run in the same deniers.

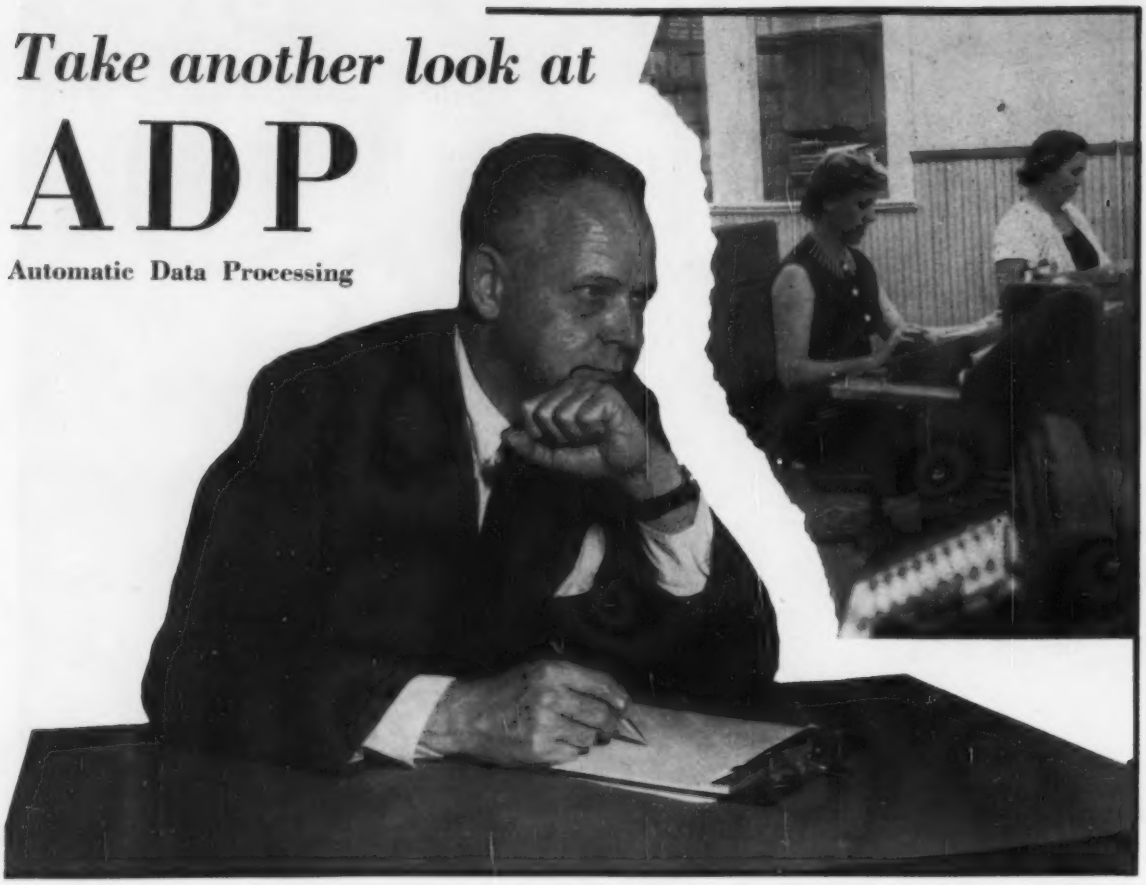
The yarn is waxed at winding for the benefit of the knitting customers. No antistatic agent is used.

Complete refrigeration and dehumidification are considered essential in running quality work, and humidity must be kept low to prevent lap-ups in spinning.

Take another look at

ADP

Automatic Data Processing



Why automatic data processing saves money for some, costs others their shirt

by Fred H. Drewes
Textile Analyst
Exclusive

TEXTILE management is now being strongly urged not to be stampeded onto the ADP (Automatic Data Processing) bandwagon without knowing exactly where that wagon is headed.

This, in a nutshell, is the advice for those "who might be attracted by the current enthusiasm over automation."

Thorough prior study, careful preparation, trial runs, adaptations specifically tailored to suit textile needs are just a few recommendations that current users of ADP in the textile field suggest. Many, of course, are not entirely happy with what the system has done for them; many are conditionally so. But a sizable majority are not.

It is this group of mill owners and operators who find ADP too costly, too complicated, or both, and whose experience should be borne in mind when attempting to achieve a real perspective of automation amid the call for its universal adoption. This, to a major extent, sums up the findings from a survey* of 5255 companies, a survey conducted nationwide and including 55 textile installations and prospective users.

Why the Ten-Ton Truck? "Why take a ten-ton truck to move a one-ton load?" one textile mill asks. This ADP user expressed disappointment because he has "not been able to use the machine as much as he should."

Another points out that his company retained management consultants' recommendations whereby the company's ADP accounting system was reverted to a manual posting operation. The result of this move, a reduction of accounting personnel from 11 to five, reduced cost, a simpler system performing the same function.

One textile executive comments, "The most important phase in considering ADP is thorough study of the work to be done ahead of time." Like the mill owner with a one-ton load, this user found his big computer cost too much for the value of the information he was able to develop with it.

It is emphasized that these shortcomings are not the fault of the equipment manufacturers, but the result of improper planning, faulty systems, selection of unsuitable equipment—most often a

*The author aided with the survey

too hasty decision on the part of management through over-zealous selling on data processing itself.

One manager who suspends judgment on ADP but believes his company may have been oversold, writes: "From now on we will move slowly in the direction of further automation, not be carried away by considering automation as an end in itself."

Medium-size firms seem to have the most difficulty. Larger companies always find areas in their operations which can be effectively applied to the use of the equipment. As one commentator put it, "The equipment will do anything you can *afford* to have it do." To determine beforehand the precise point at which ADP can bring about the efficiencies and savings that will enable a company to afford it emerges as a major problem facing those who would automate.

Not an Automatic Cure. Automation is a completely new and different concept of operation, not a substitute for manual or mechanical methods. It demands investigation, analysis, and re-alignment of existing systems before conversion can be attempted.

The growing competition between equipment manufacturers has resulted in a fine variety of available units, but to evaluate the relative merits of each system requires professional study.

One replier admits his company probably converted to ADP equipment with too few experienced people. He recommends that manufacturers take a more realistic approach to the timing and personnel problems involved in adapting electronic data processing to a given textile mill's particular needs.

A management consultant, whose clients, like the writer's, are mostly small businesses, has this to say: " . . . ADP means a radical reorganization and reorientation of (the) office. Systems and procedures, sound organization, and strict adherence to routine procedures are necessary and, where these conditions exist, ADP is a boon. Where they do not . . . such equipment is a waste of time and money and will ultimately be discarded."

"Small" ADP Units Needed. A full 10 per cent of companies reporting, including 11 of the 55 textile mills, claimed to have thoroughly investigated equipment presently available, but cannot find ADP equipment that will suit their requirements. There exists a need for ADP equipment for small and medium size textile manufacturers, especially in areas up to 200 employees.

Some of the most enthusiastic textile ADP users write that their experience with ADP has been "excellent," adding that they are large enough to warrant one of the largest commercial computers.

This observation seems particularly significant. It appears that there is a connection between successful utilization of ADP and the size of the company concerned.

For the statistically minded, it can be stated that 37 per cent of the reporting firms either had, or are about to install ADP, against 28 per cent a year ago.

It is a matter of history that fifty years ago office workers made up less than 10 per cent of the employed population. Machines generated less than 20 per cent of industrial power; now they supply nearly all of it. There are twice as many office workers today as in 1940—100,000 more than a year ago.

Office machines are the only answer, and this explains the sweeping advance through all areas of business, including textiles. Yet the march has only started. Just how much mental work is now being done by machines is not known, but it probably is less than 20 per cent. And here is a very significant statistic: today, machine investment per industrial worker varies from $19,375 in the chemical industry to $2,659 in textiles.

Before offering expressed comments of textile manufacturers and suppliers reporting a cross-section of actual experience with automatic equipment, it is well to note that in no solitary instance, where a great technological gain has taken place in the United States of America, has it actually thrown people out of work. Industrial revolutions which have taken place in the United States in the past 25 years have brought into the employment field an additional 20 million people.

The technology of automatic control is replacing a number of clerical operations involving data processing, record keeping, transmittal of information, stock inventory, status of quality reports, balance to weave, and many others well known to readers of TEXTILE INDUSTRIES. But the demand for personnel with professional and technical skills is greater than the supply.

Actually, there is a bottleneck in the development of managerial skills and talents that must be broken if we are to maintain, let alone increase, the present standard of living for our rapidly growing population.

We shall need all the brains, talent, and skills which we can muster in the years ahead. By 1970 our population will have grown 20 per cent and our labor force only slightly more. But the number of persons in the main working ages of 25 to 44 will be virtually static.

Let us stop apologizing for progress. Let us stop fearing the better future that science and technology is now making possible. Instead, let us anticipate more efficiency in operations, followed by greater expansion in business, and more and better job opportunities. Let us continue to assert the positive attitude which has made this country great, and on which the peace, prosperity, and progress of the whole world ultimately depend.

Excerpts from some of the case histories are quoted below:

Clerk and Pencil vs. ADP. "We have not installed an automatic data processing system at our mill. I still agree with the former office equipment salesman who said that the hardest competition he met was not furnished by his competitors but by a good clerk with a pencil."

Getting Small Computer. "For about two years, ending in the spring of 1958, we had a rather comprehensive (blank) installation that proved far more costly than the value of the information we were able to develop with it. Subsequent studies have indicated

that a small (blank) computer will prove of value in other areas of our accounting work and one of these machines is on order.

"The most important phase, in considering automatic data processing, is to thoroughly study the work to be done ahead of time, in order to make absolutely certain that the particular method chosen is appropriate to the expected results."

A Look at Both Sides. "We are reasonably happy with our installation . . . We have found several definite advantages to an automatic data processing system. Our order-entering system, for instance, is so tight that there is just one way to enter an order.

"We have found that the automatic production of data is not the answer to all of our problems. Anyone who has the idea that he can order a few machines, install them and forget his problems is in for a sad disillusionment. Somebody has to do a great amount of preparation, and someone must ride hard upon the system for a long while. Then, ADP can become a most valuable tool."

Investigating Equipment. "We are a small mill company and have not installed anything more than (blank) tabulating equipment. We are proceeding cautiously to investigate the feasibility of a (blank) or the equivalent. A recent change in company operations has brought management reporting requirements to such a complexity that some sort of high speed data processing equipment appears necessary."

Some Observations on ADP. "We have a sizable punch-card installation and have recently completed a study of the feasibility of electronic data processing for our operations. They entail high rental costs and sizable capital outlays for site preparation. To justify an installation in terms of pure dollars and cents, the feasibility of such systems needs to be studied on a broad basis rather than a limited organizational basis such as a bureau or small department. The intangible benefits of ADP may often outweigh the cost savings benefits.

"The success of an ADP system depends on the extent and adequacy of the preplanning phase, including analysis of existing operations, procedure development, site preparation, and preparing for effects upon personnel and organization."

A Wholly Satisfied User. "We have a key punch, printer, reproducing punch, interpreter, and a sorter. On these five machines we perform billing, purchase-order writing, accounts-receivable statements, check writing, accounts payable, departmental sales analyses, and various other reports. We have been well pleased with the equipment and feel it has given us better results at a smaller cost than any other system we have investigated."

Will Make Complete Study. (This company has had no experience with automatic data processing.) "Although company sales are in excess of $60 million, and we are handling around 12,000 individual sales orders monthly, we still process orders and figures manually without using punched card or computing equipment. This is because we short-cut many administrative procedures, thus streamlining our administrative operation . . . Nevertheless, the younger management group believes we could improve paperwork procedures by an integrated approach to automatic data processing. "In my personal viewpoint, a thorough methods study by a qualified industrial engineer would precede any specific thinking about making a change . . . There is every indication that such a study will be commenced within the next few months."

Most Offices go too Fast. "Most textile companies move too fast in trying to make the changeover from manual to automatic. After approximately two years of study as to application, scheduling and planning, we installed (blank) punched card equipment which has been in use for approximately one year. Last October we installed a (blank) system which necessitated some change from the original system. "We have had a very limited experience but our (blank) installations have proved most satisfactory, and we believe this was due to careful planning and training in advance. "However, we have found many problems, in spite of our planning, which had to be resolved after the installation. The fact that we are unable to use the machines on any full-time basis—up to the present time—means that much further application will be necessary to secure complete utilization of the equipment."

MY FIRST-HAND experience has not been so pleasant. It is not easy to admit it but the truth remains that in spite of all the time and study devoted to a complete (blank) installation in our mill group, the equipment was removed after three years of operations and the work turned back to manual processes with the exception of the substitution of one piece of equipment, a (blank) payroll machine.

The cost was found to be prohibitive compared with the results obtained at a time when net loss in operations existed in place of net gains. The ADP installation consisted of eight units which included two key punches, an interpreter, a collator, a sorter, a reproducer, a calculator, and an accounting machine.

The schedule of inventory control reports processed by this equipment included a quality report of grey and finished goods produced on a weekly basis; a quality report of pile goods, also produced weekly; a weekly shipped yards report, a balance-to-weave weekly report, a cost of goods sold, balance to weave (inventory) both on a monthly reporting basis and two quarterly reports.

In addition, the weekly payroll was also produced. However, the monthly rental on the eight pieces of equipment totalled $1,195.33, and this figure converted to yearly figure shows a cost of $14,343.96. Then add to this the cost of printed forms or another $1,200 per year, and a payroll of $12,720 (which included a supervisor, an assistant supervisor, and two key punch operators) and the yearly cost is up to $27,063.96.

With sales volume on a sharp, prolonged decline, there was noth-

ing left to do except to terminate the contract at the year end, dispense with the equipment and staff of four, and substitute in its place a used and idle payroll machine from another division.

It cost $164.35 to recondition it, and it is covered by a yearly service agreement costing $220.80. Payroll forms cost $600 per year, and two payroll clerks earn a combined total of $5,460. This totals $6,445.15, a far cry from the $27,063.96 spent each year to obtain automatic data processing. The same information was absorbed by clerks in the cost and accounting department without an increase in personnel by the manually prepared method.

As one correspondent has stated —ADP is good, but it is not for us. This statement is made with the awareness that automatic data processing equipment has been a godsend to many textile businesses, and we are also aware that, with this type of equipment, perhaps more comprehensive data can ultimately be accumulated.

How to resin-treat wool fabrics for shrink resistance

■ DIRECTIONS for formulation and application of an epoxy-polyamide resin to wool fabric for resistance to shrinkage have been released by the Wool and Mohair Laboratory, U. S. Department of Agriculture, Albany, Calif., developers of the process. The treatment makes wool fabrics launderable in home-type machines; it also imparts antimuss, easy-ironing properties to the fabric.

Formulation. Preliminary experimentation with each different fabric is necessary to establish the quantity of resin needed to give an adequate degree of shrinkage protection with least effect on fabric hand. A typical resin formulation contains 3% by weight of resin solids, with the epoxy resin comprising 60% of the total resin and the amino polyamide comprising 40%. Amounts of each component in the resin emulsion are:

Epoxy resin	36 g	15 lb
Amino polyamide	24 g	10 lb
Emulsifier	3 g	1.25 lb
Ethyl acetate	60 ml	3 gal
Water	1889 ml	94 gal
Total	2000 g	100 gal

Add the emulsifier to the epoxy resin and thin the mixture with approximately half the ethyl acetate. Thin the amino polyamide resin with the remaining half of the ethyl acetate. For preparing the emulsion on a laboratory scale, mix the two resin solutions together and pour the mixture into 300 ml of water which is being violently agitated in a high-speed laboratory blender. Continue to agitate the mixture for 1 to 2 minutes and stir the resulting emulsion into the remainder of the water.

In the preparation of emulsion on a larger scale, first pour the amino-polyamide/ethyl-acetate solution slowly into 15 gallons of water while violently agitating with a high-speed mixer, and then follow with the epoxy - resin/emulsifier/ethyl - acetate solution. Pass the resultant dispersion twice through a colloid mill and then dilute to the required concentration by stirring this emulsion into 79 gallons of water.

Treatment of Fabric. Before application of the resin emulsion, the fabric should be thoroughly scoured and conditioned to at least a neutral pH, preferably slightly on the alkaline side. An appropriate solution contains 0.1% by weight of surfactant and 0.8% by weight of tetrasodium pyrophosphate, and is used at a solution-to-fabric ratio of 20 on a weight basis. The fabric should be scoured in this solution for 20 to 30 minutes at 120 F (50 C), rinsed well, and dried.

The resin emulsion is applied to the fabric by a dip-and-squeeze method, using a conventional padder or its equivalent. The squeeze-roll pressure should be adjusted so that the fabric picks up 50 to 70% by weight of the resin emulsion. The fabric is then passed through a circulating-air oven maintained at 275 F with a retention time of 10 minutes to dry the fabric and cure the resin in a single step. The fabric is then given a process-wash to remove any unreacted resin and to soften the hand.

A typical softening procedure involves dolly-washing of the fabric for ½ to 1½ hours at 120 F in a bath containing 0.1% detergent. The time required for the softening operation depends upon the fabric, the degree of softening required, and specific conditions affecting the mechanical working of the fabric, such as roll-nip pressure, use of pot eyes, and similar factors. It is possible to break down the resin finish by excessive mechanical working of the fabric at this stage.

The allowable amount of softening for a given fabric must be determined by test. The softening conditions are determined for each fabric by sampling a representative resin-treated piece at various time intervals during softening and running appropriate tests to determine the degree of softening and shrinkage resistance remaining.

General Notes. In general, the resins used in this treatment are relatively nontoxic. Nevertheless, information regarding the toxicity of the resins used should be obtained from the suppliers of the resins. A number of epoxy resins are irritating to the skin of some individuals; consequently, rubber or neoprene gloves should be worn by workers handling the resins, the resin emulsion, or the uncured fabric. The maximum allowable concentration of ethyl acetate in the atmosphere of working areas is 400 parts per million. Consequently, the treatment should be carried out in a well-ventilated area and the curing oven should be vented outdoors. Ethyl acetate is classed as a highly flammable liquid and should be handled accordingly.

The technique described for preparing the resin emulsion will give reproducible results from batch to batch.

Materials. The following products are among those which have been found satisfactory for the process:

Epoxy resin—Epon 828, Shell Chemical Co.; GenEpoxy 190, General Mills Chemical Division; D.E.R. 331, Dow Corning Corp.; E.R.L. 2774, Union Carbide Plastics Co.; and Epi-Rez 510, Jones-Dabney Co.

Amino polyamide resin—Versamid 125, General Mills Chemical Division.

Nonionic emulsifier—Igepal DM-710, General Aniline & Film Corp.

Nonionic surfactant—Triton X-100, Rohm & Haas Co.

By far the prettiest of the speakers of the day was Miss Margaret Moore, 1961 Alabama Maid of Cotton and Auburn student.

'Bama discussion on

Staff report

ALABAMA Textile Operating Executives, more than 300-strong, met November 12 in Thach Auditorium on the campus of Auburn University to exchange views on their carding and spinning problems. Secretary-Treasurer **Cleveland Adams**, head of Auburn's School of Textile Technology, called the meeting to order. **Lester Sayers**, general chairman, assumed command of the discussion sessions, briefed the members on the day's business, and introduced **Mac Willingham** as leader of the carding discussions.

Metallic Clothing. A 23-part topic dealt with metallic clothing performance, and it brought a wealth of response both in prepared statements and in extemporaneous offerings. The nucleus of the replies are collected in *Tables 1* and *2*, with portions of the topic being reported in the text. Some of the replies, especially in cleaning, grinding, stripping, setting, trash left in sliver, fly present in later processes, etc., had to be "twisted" slightly into tabular form.

Consequently, answers such as "little effect," "little change," "no significant change," etc., were rounded off to mean "same." The

TABLE 1

Metallic Card Clothing Performance

Mill	Grade	Staple (in.)	Number of cards involved	Sliver weight grains/yd	Time in service	Feed rolls bolted down	Clothing effects on sliver uniformity	Clothing effects on nep count	Clothing effects on trash left in sliver	Clothing effects on flat strips	Clothing effects on fly in later processes
A	SLM	1	101	57	5 yr	yes	better[1]	50% less	same	same	same
B	BSLM	1	153	55 (fill) 76 (warp)	15 yr	yes	better	less	same	same	more
C	BM	1 1/16	61	57	1 yr	yes	better	less	more	⅓ less	more
D	BSL	1	158	60	—	yes	better	less	same	same	no tests
F	BSLM	1	245	58	25 yr	no	better[2]	10% less	same	30% less	no tests
G	SLM & MCSLL	1 1/16	6	50	9 mos	yes	11% better	39% less	less	same[3]	no tests
H	SLM & LtSp	31/32 to 1	2	57	2 mos	yes	no tests	3% less	same	47% less	same
I	BLM BSLM	1 1/32 & 1 1/16	6	54	6 mos	yes	better	15% to 20% less	less	0.78% less	same
J	M, MSp & SLMC	1	268	61	1½ yr	some	1.6% better	44% less	more	less	more
K	M & SGO	⅞ to 1	280	62	4 yr	yes	better	20% less	same	2.8% more	same
L	M	15/16	10	70	6 mos	yes	better	less	less	40% less	unknown
N	M	15/16	28	70	5 mos	yes	better	75% less	less	unknown	same
O	M	1	165	62	5 mos	yes[4]	50% better	unknown	unknown	unknown	more
P	M	1⅛	108	59	2 yr	yes	25% better	50% less	same	less	unknown
Q	M	1 1/32	10	52.5	3 mos	yes	better	less	less	same	unknown

[1]Remains 2.5% or less

[2]S-L sliver tester reading on metallic, 7.35; on conventional, 9.46. Present Uster reading is 3.70

[3]Flat strips are noticeably dirtier

[4]Metallic clothing not given as reason for bolting feed rolls down

NOTE: For the sake of brevity it was necessary here and there to adapt a reply such as "little change" or "little effect" or "no significant change," etc., to read "same." In all such cases the meanings remain unchanged or so nearly unchanged that the end result is not influenced.

metallic clothing, blending

end result remains unchanged.

Too, some of the answers were not complete, when examined closely in light of the question, but these had to be used. For that reason, every plant has both cylinders and doffers equipped with metallic clothing, though some of the plants have one or two so equipped; some have such clothing on the doffer; and some have it on the cylinder. But for the sake of brevity, all are assumed to have clothed both doffer and cylinder.

More next page

TABLE 2

Card Cleaning, Stripping, Grinding, and Setting Frequencies

(metallic clothing)

Mill	Cleaning			Stripping	Grinding	Setting			Remarks
	Backs	Fronts	Mopping			Backs	Flats	Over-All	
A	wkly	wkly	8 hr	wkly	when making bad work	—	—	3 mos	None
B	24 hr	48 hr	daily	8 hr	none so far	6 mos	—	3 mos	Wipes fronts each 2 hr
C	8 hr	2 times wkly	8 hr	wkly	undetermined	Set on 8- to 10-day cycle; flats on 1st, backs on 2nd			Blows out screens 8-10 days
D	8 hr	3 times wkly	8 hr	wkly	as needed	—	—	3 wk	None
F	—	—	24 hr	wkly	none	—	—	3 mos	Wipes fronts 5 times per shift, pulls screens each 6 mos
G	—	—	wkly	wkly	none	8 wk	4 wk	—	Wipes fronts 3 times per shift, blows off once per shift
H	—	—	—	120 hr	12 mos	—	—	3 mos	Cleaned each 279 hr
I	8 hr	—	24 hr	wkly	none so far	—	—	60 days	Blows off each 8 hr
J	—	—	8 hr	14 days	none	—	—	64 days	None
K	—	—	24 hr	wkly	as needed	Doffer to cyl, comb to doffer, & stripper plate to cyl each 672 hr; flats to cyl, licker-in to cyl, & mote knives to licker-in each 1344 hr			Wipes fronts each 8 hr, grinds flats each 672 hr, blows off each 8 hr
L	—	—	24 hr	48 hr	none	—	—	52 days (1288 hr)	Wipes fronts each 2 hr 40 min, bonnets each 6 hr, flat brush combs each 8 hr
N	—	—	24 hr	wkly	none so far	—	—	3 wk	Wipes fronts, backs each 8 hr
O	12 hr	wkly	—	wkly	when damaged	—	—	27½ days (operating)	Flats ground each 18 operating days
P	—	—	—	10 days	when dull	180	90	—	Sets fronts each 90 days, pulls chokes each 10 days, blows out each 90 days, sets screens each 180 days
Q	—	8 hr	24 hr	wkly	none	—	—	13 days	Grinders do complete cleaning job each 13 days

The executives began gathering early for the morning's work, but campus was already bustling, making ready for Georgia-Auburn game.

In a similar way, the part of the topic dealing with journal replacement or repairs is difficult to tabulate (it isn't in the tables) because of the inflection such tabulation will give some of the replies. To tabulate whether journals were replaced, repaired, or used as found leaves one guessing just how complete was replacement or repair. It is simpler to point out that reparable ones were repaired, irreparable ones replaced, and all others kept as found. It is also much more accurate.

The tables also aid in another way by allowing the facts to be reported without summaries. Otherwise, how does one reconcile the conflicting results under the heading "fly in later processes" in *Table 1*? It is better to let the tables tell it without comment.

The wire used was reported three ways: by supplier, by two systems of numbering, and by reporting the number used on the doffer and that used on the cylinder. *Mills C, O, P,* and *Q* use wire numbers 29 and 35; *Mill B* uses 27 and 35; *Mill K* uses 14 and 20; and *Mill D* uses 8 and 9.

Maintenance on the metallic clothing consists largely, to date, with repairing damages produced by chokes or lumps (jerk-ins) passing through the cards. This damage is prevented in some measure by bolting down the feed rolls to keep the card from gulping large wads.

A spokesman pointed out that aluminum bottom front plates save his firm much damaged clothing caused by a congested doffer forcing the plate into the cylinder wire. The soft aluminum doesn't heat, jam, and break the clothing so badly. Webs jumping the doffer comb and building up on the doffer are prime causes of front-plate damage. Curved combs have helped in some cases.

But in examining the reports of mills having bolted down their feed rolls, one finds that the mill with the most experience with the metallic clothing *(Mill F)* doesn't use the trick. *Mill J* has bolted

TABLE 3

Prebending, Opening, and Blending Practices

Mill	Blend by Micronaire	Micronaire range	Other cotton qualities considered	Results	Bales per Mix	Bales per Hopper	Mix flat and compressed	Blend by growth region
A	Yes	3.5 to 5.0	Strength, sometimes color	Satisfactory	63	7	No	Yes
B	Yes	—	—	—	44	3.38	Yes	No
C	Yes	3.5 to 4.9	Color	Fairly good, streaks sometimes	60	5	Yes	—
D	Yes	—	—	—	118	8-12	Sometimes	No
F	Yes	3.0 & coarser	—	—	90	9	Yes	No
G	Not necessarily	3.2 to 5.2	Staple, grade, locality, pack, rain-grown or irrigated	Good	56	7	Not in same hopper	Not entirely
I	No	3.8 to 5.2	Staple, grade, region, per cent short fiber	Satisfactory	30	5	No	Occasionally
K	Yes	3.2 to 5.2	Leaf, color, staple, per cent short fiber, per cent lint, strength	Satisfactory	20	4	Yes	Yes
L	Yes	—	—	—	40	4	Yes	Basically, yes
N	Yes	—	—	Less variation	40	4	Yes	Basically, yes
O	Yes	—	—	—	24	3 & 4	Yes	No
Q	Yes	3.5 to 4.6	Grade and staple	—	36	4	Yes	No

on a number for trial; and *Mill O* has bolted them down but not from having installed metallic clothing. What the increased speeds and weights will do to bearing life remains to be seen, but *Mill D* broached the possibility of accelerated wear.

On the question of keeping fly from blowing out the cylinder ends—this was unscheduled—one plant representative suggested making screen and plate settings to channel currents toward the center of the screens.

Avondale Mills sent more than 80 men—trainees, foremen, superintendents—to listen or to join in the day's discussions. Picture was made after meeting closed.

Opening and Blending. Practically every plant entering the discussions use the Micronaire in determining their blends. Once their bales are cataloged as to fineness, then the firms set their mixes down in an arrangement that will give the average or cross-section fineness they desire. Two of the plants feed cotton of specified fineness into certain hoppers. Two firms mention that their efforts to average the Micronaire in their blends depends sometimes on the cottons they have on hand. See *Table 3* for further details.

(The balance of the carding discussions along with those on spinning will appear in an early issue.—The Editors)

U. S. man-made fiber industry is 50 years old

■ DECEMBER, 1960, marked the fiftieth anniversary of the first man-made fiber commercially produced in the United States, American Viscose Corp. pointed out in a recent publication entitled "Those Fabulous Fibers in Fabrics—A History of Rayon and American Viscose Corp.

It was in Marcus Hook, Pa., one Sunday night just before Christmas, 1910, that a small band of Americans and Englishmen gathered around a platinum spinneret to produce the "artificial silk" which later became known as rayon, the introduction to the work indicated.

During the first full year of operation in 1911, the newly formed company, a subsidiary of the British firm of Samuel Courtauld & Co., produced 362,544 lb of rayon. In 1959 American Viscose made nearly 400,000,000 lb of rayon and acetate—more than a thousand times that first year's output.

The extent to which the U. S. man-made fiber producing industry has grown is shown by the following current statistics:

a. 21 fibers are currently being produced in 88 plants located in 55 communities in 20 states;

b. 64,320 people are employed with an annual payroll of $351,607,000;

c. Capital investment is $1,881,210,000;

d. $685,248,000 worth of raw materials are purchased annually;

e. $51,983,000 are spent for utility services and $59,552,000 for transportation yearly;

f. 27.1 per cent of all textile fiber made in the U. S. is produced by the man-made fiber industry.

World cotton output and U. S. mill consumption up 5½%

■ COTTON output on a world-wide basis amounted to 47,400,000 bales in the 1959-1960 season ended last July 31st, an increase of 2,500,000 bales or 5½ per cent compared with the 1958-1959 season, according to the annual review of the world cotton situation in a recent issue of *Textile Organon*. The world total comprised 30,900,000 bales produced in the free world (up 6 per cent) and 16,400,000 bales from the Communist countries (up 4½ per cent). Communist output is concentrated principally in mainland China (9,000,000 bales) and the USSR (7,300,000 bales).

The supply of cotton available for world use in the latest season totaled 68,500,000 bales, including 21,100,000 bales carried forward from previous seasons plus production at the noted 47,400,000 bales, the report indicated. As for the distribution, world cotton consumption amounted to 48,100,000 bales, an all-time record, and exports at 17,300,000 bales, also a record. The carryover to the 1960-61 season amounted to 20,500,000 bales.

For the United States, the 1959-1960 cotton season saw production at 14,500,000 bales, a gain of 3,000,000 bales over the previous season. This production was augmented by a carryover from preceding seasons of nearly 9,000,000 bales. The total supply of some 23,500,000 bales was said to have been distributed as follows: domestic mill consumption 9,024,000 bales (up 4 per cent from 1958-1959), net exports at 7,183,000 bales (2½ times as large as 1958-1959), and the carryover to the 1960-1961 season amounted to 7,333,000 bales, a decline of 17 per cent from the previous season's carryover.

Wash-and-Wear... What's ahead?

The potential is big—and so are some of the problems

by Joseph L. Williams and Frank A. McCord
National Cotton Council

Exclusive

FEW, IF ANY, developments in textiles in recent years have excited as much comment as "easy care" cottons. Despite all the fanfare, however, it is surprising how little is really known about the market and its future.

There are some who say the market has hit its peak. Others say the potential has just been barely tapped. What are the facts? These we set out to obtain, insofar as possible, when we instituted a survey late in 1959. The result is the National Cotton Council's latest market study, "Easy Care Cottons."

What are the factors influencing demand for easy care textiles? What is the extent of consumer demand for easy care qualities? What qualities are significant in easy care products? What are the principal advantages and disadvantages of easy care textiles produced by the different processes?

What are the potentials for strengthening and expanding demand for cotton through improvements in easy care qualities or for chemicals and other supplies consumed in the production of easy care cotton textiles?

Finally, what is the current status of easy care cottons and what will be the future demand?

These are some of the questions to which answers were sought as we interviewed representatives of all segments of the textile producing and distributing trades and allied groups—as we talked with spinners and weavers, finishers, converters, cutters, retailers, and synthetic fiber producers.

We drew heavily, too, from Census tabulations, National Cotton Council studies, trade press reports, and from consumer preference surveys of the U. S. Department of Agriculture and of private firms.

Demand Factors. Many of the answers to the burgeoning demand for easy care clothing and household furnishings lie in the changes that have been taking place in the living patterns of people in this country since World War II.

In the first place, families are getting larger, with a greater proportion of young children. This means more apparel and household items to be reconditioned. These families have more time for recreation and sports. They're wearing more casual clothes and they want apparel well adapted to easy care.

The high cost and scarcity of household servants are throwing the burden of home laundering on the housewife. She wants this job to be as easy as possible. And it is easier with more efficient laundry equipment or in commercial launderettes. Ironing and pressing, however, is still the big chore. So she turns to easy care textiles which take much of the drudgery out of this task.

There are some other significant patterns. More women are engaged in gainful employment; they have less time for washing and ironing. Mechanization — with a trend away from manual labor—has brought a shift from heavy work clothing which may not be laundered frequently to lighter clothing, easier to laundry and laundered more often.

Finally, outside activities, in-

volving extensive contacts with other individuals, have focused more attention on the neat appearance of garments as well as on cleanliness requirements.

Consumer Demand. Those are some of the reasons behind the demand for easy care qualities, but how big is the market in which these qualities figure? An analysis of fiber consumption and of consumer likes and dislikes in uses accounting for about 90 per cent of the cotton consumption in this country indicates that consumers desire easy care qualities in outlets accounting for approximately 7.25 billion square yards of fabrics annually.

This indicates that these qualities now figure in more than half the total domestic consumption of broad woven fabrics. Woven fabric consumption in 1959 in uses where easy care qualities are important totaled 7,228 million yards—5,260 million for cotton and 1,968 million for other fibers. Cotton accounted for 1,673 million of the 2,047 million total in men's and boys' apparel, 1,355 million of the 2,144 million total in women's and misses' wear, and 1,882 million of the 2,604 million in household furnishings.

Cotton accounted for 73 per cent of the total consumption of woven fabrics in uses in which consumers want easy care qualities.

This suggests that:

Easy care qualities would strengthen cotton against competitive losses in outlets now accounting for about 5.25 billion yards a year.

Satisfactory easy care qualities would help cotton achieve competitive gains in uses consuming about two billion square yards of competing materials.

The annual demand for chemicals or other products to process textiles for easy care qualities is equivalent to the quantity of materials needed to process 7.25 billion square yards.

Demand for easy care qualities is distributed among wide segments of both apparel and household uses.

Significant Qualities. From interviews with consumers, retailers, and others came a list of characteristics most desired in wash-wear products—smooth drying, wrinkle resistance, launderability, dimensional stability, strength, quick drying, comfort, hand, drape, and soil resistance.

Translated more specifically, it indicated that customers desire wash and wear products: that are acceptable for use after laundering, without ironing; that are resistant to wrinkling after use; that can be cleaned adequately by home laundering methods or commercial processes and retain their desirable qualities; and that have the ability to maintain original size without shrinking or stretching.

These fabrics must have the characteristic of losing moisture rapidly, particularly after laundering, and the ability to withstand normal stresses and strains encountered in wear and in laundering without breaking and tearing.

Comfort factors such as absorbency, coolness, and freedom from irritation are highly important.

Enhancing sales appeal also are such desirable qualities as a good feel or hand, a soft sheen or richness of appearance, the ability to hang smoothly without appearing stiff, and resistance to adherence or penetration of stain or soil.

Pros and Cons. How well are textiles produced by the different processes measuring up to these quality requirements?

The interviews pointed up that chemically finished cottons provide better wrinkle resistance and smooth drying qualities than untreated cottons. They are superior to blends and to synthetic fabrics in bleachability, washability, and comfort.

Cottons will take a wider variety of dyes than most blends and synthetic materials and they are easily printed. They are resistant to melting and pilling, and do not develop static electricity.

Chemically finished cottons can be laundered at washing temperatures high enough for thorough soil and odor removal without adverse effects on smooth drying performance.

Newer finishes which impart a high degree of both wet and dry wrinkle recovery through chemical modification of the fibers are rapidly bringing an end to the inconvenience and necessity for drip drying. This is an important advantage over thermoplastic synthetic fibers which require drip drying or temperature-controlled tumble drying.

Most of the disadvantages enumerated in the survey are not a problem with good quality finishes. Retailers and consumers, however, often associate disadvantages experienced with a particular finish with all chemically finished fabrics. Complaints were voiced on an unsatisfactory level of wrinkle resistance, both wet and dry; lack of durability for the life of the product; low tensile strength; fabric yellowing or strength loss; a reduction in comfort qualities; poor hand and drape; and odor.

Most disadvantages of chemical finishes can be minimized by proper application and processing and by proper handling. Furthermore, new finishes now being evaluated by chemical companies and textile organizations promise improvements which will overcome many of the current objections.

How about blends?

Since the easy care properties of blends are dependent on fiber content, they last for the life of the product. Some can be used for fabrics with lighter weight or with better hand and drape than can be achieved with chemical finishing. Compared with 100 per cent synthetic fabrics, blends usually have more comfort, better appearance, and more variety in color and styling.

But blends usually are not as washable as cottons, must be laundered at relatively low temperatures which often are ineffective in removing soil and perspiration odor, and, unless handled under closely controlled conditions on spin and tumble drying, must be washed by hand and drip dried. Home bleaching is not practical with blends.

Blended fabrics are not as comfortable as all-cotton easy care materials. They're less absorbent, cling, pick up lint, and some pill badly. Polyester fiber blends are susceptible to cigarette burns and to holes produced by heat melting. Thermoplastic fiber blends must

be ironed at low temperatures to prevent glazing, sticking, or melting.

What are the advantages and disadvantages of easy care provided by fabric constructions?

Members of the trade pointed out that the natural fiber qualities are not impaired when easy care is achieved through such constructions and that suitable constructions help achieve maximum easy care properties in resin finished fabrics. Cotton fabrics with textured or irregular fabric surfaces reduce care requirements while retaining good washability and comfort qualities.

Appearance of easy care fabrics achieved through irregular surfaces, such as plisses and seersuckers, often restricts the market for the fabric, particularly in style items. The degree of easy care may not satisfy demand, and easy care qualities may be lost in use.

How do wash and wear synthetics compare with treated cottons or blends?

Synthetic fabrics often have a higher degree of wrinkle resistance, and they usually dry quicker. In certain uses, their qualities such as sheerness, slipperiness, and luster are advantages; in others, they represent important disadvantages.

Disadvantages of synthetic fabrics are similar to those of blended fabrics: lack of comfort, excessive luster, limited fabric constructions, poor colors and color selections, and need for hand laundering. Other disadvantages include seam slippage, manufacturing problems, excessive slipperiness, ironing problems, pilling, static electricity, hole burning, lack of bleachability, and soiling.

Current Status. According to estimates, approximately 3 billion linear yards of easy care fabrics were produced in 1959. Of these cotton accounted for 1.89 billion, rayon—.38 billion, cotton - synthetic blends—.13 billion, synthetic blends—.07 billion, and 100 per cent synthetics—.55 billion.

Cotton's percentage of the total amounted to 63. Other percentages were: 100 per cent synthetics—18, rayon—13, cotton-synthetic blends —4, and synthetic blends—2. Production of resin finished broad woven cotton fabrics increased from 600 million linear yards in 1955 to almost 1,900 million in 1959.

In square yards of fabric, resin finished cottons in 1959 accounted for 2,061.1 million, or 41 per cent of cotton's market in apparel and household uses, a gain of 7 per cent over 1958. They accounted for 46 per cent in men's and boys' wear, 58 per cent in women's and misses' apparel, 46 per cent in girls', children's, and infants' wear, and 23 per cent in household uses.

While it now appears that the rate of increase in production of resin finished cotton fabrics is leveling off, interviews with cutters and retailers indicate that the growth trend is still upward. Furthermore, a leveling off in production suggests that consumers are waiting for further improvements in easy care qualities rather than that the demand for easy care products has been saturated.

Problems. Exaggerated promotional claims, lack of identification, poor quality, and pricing policies represent major problems in the manufacture and sale of easy care textiles and products, according to the survey.

Retailers believe easy care products provide important consumer benefits and should be sold on their merits and not on exaggerated claims which cannot be satisfied at the present level of development. Such claims, and the indiscriminate use of easy care, wash-wear tags on fabrics and products which have few if any easy care properties, have confused many consumers to the point that they now regard all easy care claims with skepticism. This still has not diminished the intrinsic desire for easy care items.

Most consumers select well identified easy care items over those not identified even though the sales clerk may insist that the unidentified articles are equal or superior. And brand names associated with high quality influence consumer choice. Generally, however, even the better quality finishes have not been properly identified and the customer has no satisfactory basis for judging relative merits.

Quality too often has been sacrificed for lower price in finishing and promoting easy care textiles and products. This emphasis on price, rather than quality, has dragged down prices of chemicals to the point that much of the incentive to push research and development to improve these products has been lost.

While production of a large volume of low quality, low price merchandise perhaps always will be associated with the textile trade, there is an urgent need for major textile producers and their chemical suppliers to cooperate in meeting and developing consumer demand for high quality, easy care products which carry sufficient profit margins to assure essential research and promotion.

There is an urgent need, too, for more information on the influence of tensile strength on performance and wear of easy care products. Many retailers believe the process reduces strength and are reluctant to push easy care items. Others have had relatively few complaints and feel that tensile strength loss objections are exaggerated and that customers are willing to sacrifice some wear life to obtain easy care qualities.

They say a majority of consumers are willing to pay from 15 to 20 per cent more for finishes they know provide definite improvements in easy care qualities. However, while "good" wash-wear finishes add only a few cents a yard to basic fabric costs, pricing practices are such that this may be reflected in substantial increases at the consumer level.

Since consumers have been dissatisfied with many of the poor quality finishes, and since price has not afforded a reliable basis for distinguishing quality of the finishes, relatively high prices have tended to soften consumer demand for easy care products in some instances.

Future Demand. Apparel and household products together account for 81 per cent of domestic cotton consumption. These are uses in which individual choice is a major factor and in which easy care properties will influence selection. Furthermore, apparel represents the dynamic growth area for textiles in the domestic market.

Continued on page 91

PHOTO COURTESY DAVIS & FURBER MACHINE CO.

Panelists for the round-table discussion at the Carders' Guild meeting, l-r: **Francis Herbert,** Aldon Spinning Mills, Talcottville, Conn.; **L. J. Baker,** J. P. Stevens & Co., Milledgeville, Ga.; **Robert Thomson,** Cyril Johnson Woolen Co., Stafford Springs, Conn.; **Russell L. Brown,** Union Carbide Chemicals Co.; **Manuel Teixeira,** Hillsboro, N. H.; and **William Neumann,** A. & M. Karagheusian, Inc., Roselle Park, N. J.

National Association of Woolen and Worsted Overseers held annual convention in Boston

Staff report

Wool men probe carding and combing

THE NATIONAL Association of Woolen and Worsted Overseers held its 77th annual convention on November 11-12 in Boston's Hotel Madison, attracting a large group of members from Canada and all textile regions of the U.S.

As in the past, the individual Guilds held technical sessions, offering opportunity for question and answer periods for the exchange of knowledge between members, speakers, and panelists.

Is card overhauling necessary?

The Carder's Guild provided its members with a round-table discussion of problems, with mill men serving as panelists. The first question presented before the panel was, "How often should a 3-cylinder card be ground and overhauled?" L. J. Baker, carding consultant for J. P. Stevens & Co., presented a comprehensive breakdown of the frequency with which various components, parts, and equipment should be inspected, cleaned, replaced, or repaired.

For the first breaker, for example, Mr. Baker made the following recommendations, to be carried out at a frequency of six months.

"Check tumbler, stripping motion, and comb box for excessively worn or damaged parts; also check all pulleys for lagging, belts for frayed or weak places, all set screws in pulleys and gears for looseness, and the fancy cover for proper clearance. All bearings should be cleaned and checked, with all excessively worn journals being replaced or metalized back to standard size. The cylinder bearing caps should be removed and the oil chambers, rings, and bearings cleaned and checked thoroughly for proper operation."

At a frequency of 12 months, "the stripping worm bushing pin slot should be checked and built up (if needed) and the slotted bushing pin replaced to insure proper function."

The breaker section of a card, he said, should be ground at least once each three months and the finisher section at least once each six months. As cards are being ground, all worn or damaged clothing should be replaced.

With a practical preventive maintenance program, Mr. Baker pointed out, it should never be necessary to overhaul a card.

Among panelists and members, there was complete agreement with Mr. Baker's recommendations. Other panelists also offered comments on the frequency of grinding. One panelist stated that in his plant grinding was done every four months, depending largely, however, on type of stock.

Another panelist gave a frequency period of about six months. A number of the panelists pointed out that the type of stock and the settings used had much to do with frequency of grinding,

and that the maintenance programs that were followed by the mills would depend on many factors, among them the number of cards in operation. However, there was complete agreement on the need for establishing regular inspection and maintenance cycles.

When to Grind? Following this discussion, a member of the audience raised fundamental questions regarding the purpose of grinding and what conditions determined that a need for grinding existed. He asked if grinding was done because the point or the pitch of the wire were lost? Or because quality had suffered as determined by test?

The member who raised this question pointed out that in cotton processing much progress has been made toward improving operating efficiency. In cotton mills, he said, the laboratory indicates whether grinding is needed. Much progress has also been made in standardization. Each bale is graded for quality, tested for strength of fiber and staple length, and status of fiber maturity established. The characteristics of the cotton, important to processing, are assessed beforehand.

Much of the discussion which took place on these points, in which panelists and members alike joined, pointed to the complexity of the variables which exist in wool carding. Among these, there are the variations in wool quality to which adjustments must be made, and the increasing number of fiber blends which discourage standardization of carding conditions.

Many of the carders pointed out that experience was often a best means of determining whether a card needed grinding. A drop in efficiency and quality would result, which would get progressively worse if the wire was not restored to proper sharpness and pitch. One member stated that most carders could tell whether grinding is needed simply by observing the way a card opened the stock.

Can wool carding become an exact science, or will it continue to be largely an art, in which experience is required? One carder of wide experience, when asked this question following the meeting, did not believe that it would become an exact science. The lack of uniformity in wool, he said, was the chief obstacle toward that goal.

Another question presented before the panel was, "Who in a woolen mill should determine at what draft yarn should be spun?" The answers that came forth from both panelists and members indicated that this should be a joint decision between carder and spinner, with a higher authority called in if necessary. One member commented that among carders there is a tendency to make the yarn heavier in order to get higher production; while the spinners would like it lighter so that they can draw it out. He said that every carder should have a knowledge of draft.

Quality and fiber length control in top making

In a talk presented before the Worsted Spinners' Guild, "Carding and Combing and Their Relations to Spinning," Edward Garnett of the Hudson Combing Co., Hudson, Mass., pointed out the importance of each process in top manufacturing toward controlling quality and length distribution.

Considering the wide range of qualities and lengths that are found in every fleece, it is remarkable, Mr. Garnett said in opening his talk, that fabrics should be so close in micron count and staple length distribution over a large production.

The control of quality and

Processes affecting top characteristics. Note: Items such as staple length are actually affected by all processes. This chart reflects significant changes in the final top.

TOP CHARACTERISTICS	AFFECTED BY									
	SORTING	OPENING	SCOURING	CARDING	BACKWASHING	PREPARING	COMBING	1st FINISHING	2nd FINISHING	
COLOR	X		XX		X					
EVEN-NESS(Yd to Yd)				X			X	XX	XX	
MICRON	XX									
MOISTURE						X		XX		
NEPS, SLUBS				XX			XX	X	X	
OIL & NAT. FATS			X			X		X		
SLIVER WEIGHTS (Ball to Ball)								X	XX	
STAPLE LENGTH	X		XX	XX			X			
VEGET. MATTER				XX			XX			

X - Process affecting characteristic
XX - Process most affecting characteristic

Quality control testing. Note: Testing procedures will vary, of course; sometimes the choice of tests and the methods will depend on the critical specifications of particular lots.

	SORTING	OPENING	SCOURING	CARDING	BACKWASHING	PREPARING	COMBING	1st FINISHING	2nd FINISHING
COLOR	X		X		X				X	
EVENNESS				o			o		O	
MICRON	X								O	
MOISTURE			O	o	O	O			O	
NEPS				X*					X*	
OIL & NAT. FATS			o			O			O	
SLIVER WEIGHTS					O	O		O	O	
STAPLE LENGTH	X								O	
VEGET. MATTER	X			X*			X*		X	

X - Visual (comparison with standard)
o - Instrument (occasional to continual)
O - Instrument (continual)
* Counted

length, which are important to the spinner, begins with careful sorting. Most combing plants dump the sorts into bins holding up to 50,000 lb, from which vertical cuts are made by fork trucks utilizing special tines so that several days' sorting may be represented in each batch put into process.

In scouring, natural, acquired, and applied impurities must be removed. Over the last seven years most combers have converted to neutral, nonionic detergents. In most cases they have found among other advantages, that this method gives better control over fiber-weakening, which results in fiber breakage in subsequent operations. The prerequisite to good scouring is to recognize the scouring requirements of different wools.

If the residual extraction test of the scoured wool is 0.5% less than it should be, over-scouring has taken place. The carder will have excessive fly and reduced production to keep nep count down, and the spinner will receive a top of inferior handle, with a greater percentage of short fibers, and he may have to control the wildness of the fibers.

An underscoured top, on the other hand, also has undesirable characteristics. These are lack of luster, and a tackiness that becomes apparent in a harder draw of the top.

In carding, reduction of fiber breakage and keeping the short fibers from curling are important toward facilitating the spinning operation. These are accomplished through a constant check of weights and settings, and maintaining stripping and grinding schedules, along with a continuous inspection program.

Backwashing, which may precede or follow combing, affords a further cleansing of the stock and conditions it to proper moisture content for subsequent processing.

Preparation for combing has now evolved into intersecting draw frame operations. The slivers are made into the correct weight, and receive proper moisture conditioning and lubrication for combing through two or three gillings, plus a punch-balling operation on the Noble system.

Combing today is accomplished predominantly on the Bradford or Noble comb, and the French comb. Each method involves feeding, preliminary combing, combing, sliver formation, and noil removal. The French comb is more versatile, since it efficiently processes the shorter and finer wools. Immediately following World War II it gained popularity in the U.S. due to the clarity of the sliver that it produces. Then emphasis shifted to the Noble comb for fine wools as it better met the specifications for the rapidly expanding American system.

Combers experimented to decrease fiber breakage in all processes to keep more than 80% of fibers in fine tops over two inches. This was accomplished more easily on the Noble comb, since it afforded a greater removal of short fibers.

As improvements were made and intersecting draw frames came into use both before and after combing, reducing some gilling operations on the French system, it became more feasible to meet the new length specifications on the French comb. Therefore, the emphasis has been shifting back to French combing.

Finishing is generally two gilling operations. Moisture is restored to specifications, usually 13%. The uneven comb sliver is doubled and drafted to the desired sliver weight and balled, or in some cases coiled. In some operations, oil content is brought up to specifications.

Industry needs more highly trained, highly imaginative graduates—Milliken

■ MEMBERS of the National Council for Textile Education recently heard Roger Milliken project his thoughts on future developments in the U. S. textile industry and discussed with him the rigid educational programs that textile colleges must provide.

As guests of the Deering Milliken Research Corporation and Service Corporation, the Council held its annual meeting at the parent company's Peach Queen Guest House in Spartanburg, S. C., and it was on this occasion that Mr. Milliken underlined the need for highly trained, highly imaginative textile graduates in increasing numbers to meet future competition, both foreign and domestic. The textile plants of the future will be much more complex and automated than anything heretofore dreamed of, he said, so that emphasis on technological and engineering skills will far outweigh the "ability to manage and get along with people," which was considered so important in the past.

Mr. Milliken also outlined a new cooperative program in which the several textile colleges will each be invited to send a textile professor and group of hand-picked students to work in his company's plants during the summer months.

In the Council's executive sessions discussions centered around the new programs now in effect in many of the institutions represented, in which basic technology and science are being stressed, as opposed to the traditional "how-to-do-it" curricula and courses offered in the past.

Textile college enrollments are increasing significantly, and upwards of 1900 full-time students are now studying at the dozen institutions that the Council's members represent. It was felt that this marked trend is the result of several factors, including better conditions in the textile industry, higher starting salaries for graduates, increased numbers of scholarships provided by industry, intensive recruiting programs in several of the schools, and improved educational programs to meet the current and future needs of the industry.

Preliminary plans were laid for a four-day seminar of textile teachers to be held in June, 1961, at the Philadelphia Textile Institute.

The educators were shown the blueprints of the completely automated cotton spinning mill soon to be constructed by Deering Milliken in Spartanburg. Russell Newton, president of the D. M. Research Corp., Kenneth Lowry, general manager of the D. M. Service Corp., and members of both staffs, provided a full afternoon's tour, and a program describing the company's organization, objectives, techniques, and college-graduate recruiting activities.

Clean air cut rejects 30%

That's how much Bloomsburg Mills' rejection rate on loom-finished goods was cut by electronic air cleaners

by **W. J. Ortman**
Minneapolis-Honeywell Regulator Co.

Walter Baur, superintendent of the Lock Haven, Pa., plant of Bloomsburg Mills, inspects loom-finished goods. Electronic air cleaner has slashed rejection rate on these fabrics by 30 per cent.

WALTER BAUR, superintendent of Bloomsburg Mills in Lock Haven, Pa., settled back in his chair and thought for a moment. "The biggest benefit we've had from the electronic air cleaners has been that our woven goods —particularly our loom-finished whites—are much cleaner. In fact, we've cut the reject rate 30 per cent on these since we installed the electronic air cleaners.

"There are other advantages too. Less dirt in the mill means closer humidity control in our weave rooms, because sprayer nozzles don't get clogged. The air-conditioning system is more efficient and our workers are more productive when the plant is clean.

"Both plants—this one here in Lock Haven and the one in Bloomsburg—are located in industrial towns. The Bloomsburg plant, in fact, is only a few miles from Pennsylvania's anthracite coal country, so there's plenty of dirt in the air. That dirt was the cause of our quality-control problem. It also meant extra maintenance for us cleaning the 200-odd looms. So we tried electronic air cleaners in both plants.

"And now you can walk through the plants and see the difference. The goods are cleaner, the looms are cleaner—why, even the overhead pipes and light fixtures stay clean and free of lint and dust."

Dirt Costs Money. Dirty air can be expensive in terms of ruined goods, extra maintenance, lost production. And the amount of dirt swirling through the air is almost incredible. In an industrial area, a single cubic foot of "clean" outside air can contain as many as 100 million particles of dirt—soil, sand, smoke, fuel dust, fly ash, chemicals, rubber, metal chips, ceramics, and other debris. These particles range from "large" ones 20 microns long, barely visible to the naked eye, down to minute bits just 0.01 micron long, which can be only seen through a high-power microscope. (A micron is 1/25,400th of an inch). To give an idea of these sizes, if the small one were enlarged until it measured an inch, the large particle would be 167 feet long!

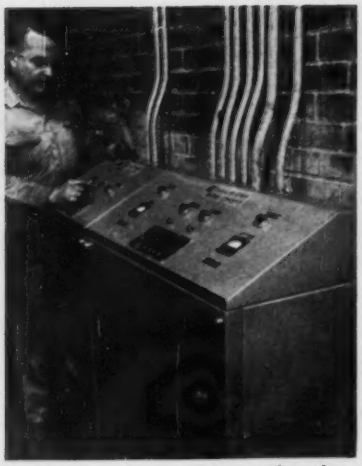
Some of this dirt gets into a mill through doors and windows, some "walks" in with people and parts, but most is sucked in through the air-conditioning and ventilating system.

Unfortunately, a mechanical-type filter is of little help in removing this dirt. Even though a mechanical filter gets dirty, it catches only the big particles—5 microns and larger. The smaller particles—the ones that account for over 90 per cent of the dirt stains inside a building—are too small to be strained out by a mechanical filter, and they go right through the air-conditioning system into the mill. Moreover, as a conventional mechanical filter gets clogged with dirt particles, it chokes up, reducing the efficiency of the air-conditioning system.

So bringing large quantities of "clean" air from outdoors into the mill is no solution; indeed, it only increases the problem.

Electronic Air Cleaner. Mr. Baur's solution to the dirt problem was installation of electronic air cleaners in the Bloomsburg Mills' Lock Haven plant. These air cleaners (sometimes called precipitators) electrically "scrub" 90 per cent of all dirt particles 0.01 micron and larger from the air. As a result, the mill processes are protected from the damaging and staining effects

Electronic air cleaners are made in standard-size modules, can be built up to any capacity. The installation at Bloomsburg Mills' Lock Haven plant handles 140,000 cfm.



Simply by pushing a button, Bloomsburg Mills' Jim Andrus starts automatic washing cycle for the electronic air cleaners.

of airborne dirt, and rejections and impaired-quality fabrics caused by this dirt have been completely eliminated.

The reason an electronic air cleaner can remove over 90 per cent of all airborne dirt lies in its operating principles:

How It Works. In an electronic air cleaner, incoming air first passes through a 13,000-volt electrostatic field, putting a positive charge on each dirt particle. Then the air goes between metallic collector plates, which carry 6500-volt positive and negative charges on alternate plates.

The dirt particles, which are carrying a positive charge, are repelled by the positively charged collector plates and attracted to the negatively charged plates. As they strike the plates they are held by both the electrical charge and a glue-like adhesive solution.

High-Efficiency Cleaning. Because every dirt particle—even the smallest—is millions of times larger than an electrical charge, virtually all the particles in the air will be "caught" by an electronic air cleaner. Actual efficiency varies somewhat, depending on the installation and the air velocity. Generally, however, efficiencies run between 90 and 95 per cent, as determined by National Bureau of Standards test procedures. In the Bloomsburg Mills, tests show efficiencies are better than 90 per cent.

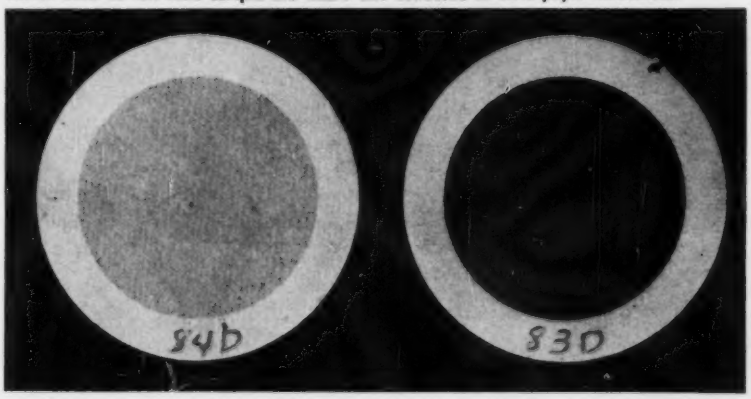
This dirt is removed from the collector plates by periodic washing. (Cleaning frequency is determined by how dirty the air is.) Simply pushing a button on the electronic air cleaner console starts the washing cycle. From then on the operation is entirely automatic. The control console turns off the electric charge on the collector plates, then uses a traveling spray to flood them with a hot detergent solution, which washes away the collected dirt and the adhesive. The collector plates are next rinsed with hot water, then air-dried by the blower system. When the plates are completely dry, they are automatically coated with the adhesive, then the air cleaner turns on again.

At Bloomsburg Mills the electronic air cleaner is installed behind the mechanical filters. And neither the coils nor ducts have had to be cleaned since the electronic air cleaner was installed.

Less Air-Conditioning Expense. Perhaps the most dramatic savings with an electronic air cleaner, outside of a lower reject rate, is reduced heating and cooling expense.

In a conventional air-conditioning system, quantities of outside air

Before and after: What 90 per cent air-cleaner efficiency means. Filter paper on the right sampled air in an air-conditioning duct before it reached electronic air cleaner, sample on the left after it passed through air cleaner. Both were exposed for same period of time. Darker lines on left-hand sample are where dirt collected in filter-paper interstices.



are brought inside to dilute odors and "freshen" the interior. But before this outside air gets indoors, it must be heated or cooled to the proper temperature — and this costs money.

With an electronic air cleaner in a mill, however, the interior air can be recirculated over and over. Instead of being vented outside, the interior air can be brought back through the return air ducts, passed again through the air-conditioning system and circulated again and again through the plant.

Since this air has already been heated or cooled to the desired temperature, only a small amount of additional heating or cooling is needed, meaning lower operating costs for the air-conditioning system. In the Bloomsburg Mills, for example, virtually all the interior air is continuously recirculated, with only a minimum amount of outside air brought in to replace interior air lost through doors and windows.

Comparable Costs. In a new mill, an electronic air cleaner can be included in an air-conditioning system for about the same cost as a conventional air-conditioning system without an electronic air cleaner. The amount saved on unneeded heating and cooling capacity is usually enough to offset the first cost of the electronic air cleaner, especially since air-conditioning equipment must be sized large enough to handle maximum heating and cooling loads. And, as shown, operating cost of the system with an electronic air cleaner would be less than for a conventional system, since less fuel, less electricity, and less water would be required.

In an existing building, operating savings of heating and cooling equipment would probably pay for an electronic air cleaner in a short period—depending, of course, on building design, climate, and other factors.

There are, of course, other benefits with an electronic air cleaner. As Mr. Baur pointed out, air is cleaner in the manufacturing areas. Fixtures, piping, windows, and equipment remain dust-free. The water tray collecting tank at the Lock Haven mill, which had to be cleaned every week, now stays clear. But the biggest advantages, of course, are the improved reject rate and the brighter, cleaner finished goods.

Tips for package dyeing high bulk Orlon by sponge-core technique

Extract*

■ THE RECENTLY developed sponge-core package dyeing technique (TI for Nov., 1960, p. 59), in which yarns are shrunk or bulked on a cellulosic sponge sleeve or core that encloses a standard dye tube or spring, may be used to improve package dyeing of high bulk yarns of "Orlon" acrylic fiber.

The sponge provides a rigid surface for winding, yet it is highly compressible when subjected to shrinking forces of the wet-out yarn. Prebulking of the yarns can be eliminated. Yarns dyed by this method are satisfactory for many types of sweaters, including bulky knits.

How to Use the Sponge

Winding. The dye packages are wound on conventional winders as they would be without a sponge core. A one-pound package processes well. The thickness of the sponge needed depends upon the amount of yarn shrinkage. Coarse-pore cellulosic sponges one-half inch thick are most generally used.

It may be difficult to insert a dye tube into the sponge core if the sponge is dry. For this reason, the sponges should be stored at a humidity of 60% R.H. or higher.

Dyeing. Formulas and procedures for conventional package dyeing of pre-bulked yarns can be used for yarns wound on a sponge core enclosing a dye tube.

Backwinding. If water is removed from dyed packages by centrifugal or rapid-air extraction, it is possible to backwind the yarn without completely air drying it. The last one-eighth to one-fourth inch of yarn off the package may snag on the flange of the sponge core that protrudes from the end of the package. If so, a large tube cap or plastic disk of 3⅝ to 4½ inches in diameter fitted over the end of the dye package will prevent this. Also, the sponge can be positioned on the tube during winding to minimize the amount of flange that protrudes after dyeing.

Sponge Re-use. Four or more reuses of the sponge sleeves have been made without difficulty when dye transfer to the cellulosic sponge has not been a problem. Temperatures in excess of 230 F adversely affect the resiliency and re-use of the sponge cores; therefore, more uses are obtained if dyeings are made at temperatures nearer the atmospheric boil.

After cone winding, the sponges are easily slipped off the dye tubes and soaked in water. Soaking aids the sponge to regain its original dimensions before re-use. The sponge sleeves are dried off the tube and stored at 60% or higher relative humidity for re-use.

How to Increase Yarn Bulk

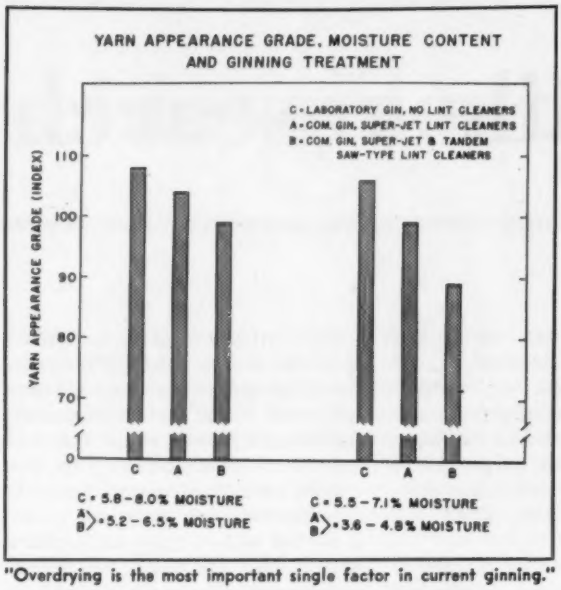
Stress-Bulking. During package dyeing of coarse count, high bulk yarns of Orlon, the yarns next to the sponge core become elliptical in shape because of compressive shrinkage. The bulk of the yarn, therefore, is reduced.

To restore a round shape to the yarn and to increase the bulk, stress is applied to the yarn during backwinding and then the yarn is relaxed. Stress on the yarn elongates it and breaks the compressed fibers apart. The yarns will partially relax in recovery, and they can be completely relaxed after knitting by hot-tumbling or steaming. The method for restoring bulk also works well on yarns that have been flattened by wet-coning at high tensions or by skein dyeing in an overloaded machine.

Theoretically, any means of applying stress can be used, such as snubbing over tension bars or by drafting or drawing through positively driven

Continued on page 91

*From Bulletin OR-108 (Oct. 1960) entitled "Package Dyeing of High Bulk Orlon," published by Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc.


YARN APPEARANCE GRADE, MOISTURE CONTENT AND GINNING TREATMENT
C = LABORATORY GIN, NO LINT CLEANERS
A = COM. GIN, SUPER-JET LINT CLEANERS
B = COM. GIN, SUPER-JET & TANDEM SAW-TYPE LINT CLEANERS
YARN APPEARANCE GRADE (INDEX)
110
100
90
80
70
0
C A B
C A B
C = 5.8 – 8.0% MOISTURE
A, B = 5.2 – 6.5% MOISTURE
C = 5.5 – 7.1% MOISTURE
A, B = 3.6 – 4.8% MOISTURE

"Overdrying is the most important single factor in current ginning."

Cotton crop and card room

were discussion topics at STA meeting

Staff report

Chairman Byron Stevens conducted the meeting

OUR experience indicates that if you were to select the samples having the roughest preparation in any lot of cotton today, you would find the best spinning quality in that lot. The rough preparation indicates that the samples were ginned with adequate moisture content . . . overdrying is the most important single factor in our current ginning process."

That's what Earl E. Berkley, Anderson Clayton & Co., told members of the Eastern Carolina Division, Southern Textile Association, at their recent fall meeting in Raleigh, N. C. Dr. Berkley's remarks prefaced a report which he gave on the spinning qualities to be expected from the 1960-61 cotton crop.

The current crop is coarser than usual, particularly in the Mississippi Valley, Arizona, and California. Average strength for cotton from the Southeast will be 75-78; in the Mississippi Valley, 80; Texas, 80-82. The count-strength product at the level of 22s yarn is lower, and yarn appearance grades are about the same in most areas, but slightly lower in the Southeast and in the Rio Grande Valley.

Mills should anticipate lower yarn strengths with more ends down, more warp breaks, and more loom stops, on the average, and it will be necessary to blend the cotton for fiber fineness more carefully and to make purchases more specifically than for any crop since 1952. With the reduction in mill margins and the shortage of low grades, particularly with the limited amount of fine cotton of the desired grades and staple lengths, many mills will obtain their supplies without providing for the necessary balance and will pay more for the cotton due to the increased production costs, Dr. Berkley concluded.

Erwin Mills' John Saunders led card room discussion.

Card Room. One group of mill men discussed card room practices and problems. A mill representative explained in this meeting that when an outlet trap was installed on existing vertical openers, with beaters operated at 850 rpm, the beaters required precision balancing. An increase of 10-15 per cent in droppings and fly accompanied the change.

A mill spokesman told of removing the wood rolls from lattice openers to allow free flow of cotton from feed to overflow and reserve. Another mill bypassed vertical and lattice openers and used only pre-opener and Superior cleaner.

In using Axi-Flow cleaners in tandem, an increase in droppings was noted, and the use of a lower grade of cotton was possible, according to the mill reporting.

Mills using metallic card clothing reported an increase in licker-in speeds. In one instance a 25 per cent increase was noted (from 450 rpm to 560 rpm), and production went from 10½ to 14 pounds per hour. Other licker-in speeds were: 450 rpm, 6 pounds per hour; 430 rpm, 11 pounds per hour; 460 rpm, 15 pounds per hour on SL cotton; and 450 rpm, 15 pounds per hour on LM cotton.

No conclusions were reached in a mill where all types of flat clothing were on trial. Three inches per minute was the only flat speed mentioned.

Several mills averted difficulty

Continued on page 91

Textile research

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

***Part* 1**

THE FOLLOWING summary of domestic and foreign textile research achievements is based on published reports which appeared during the year. No attempt has been made to include every new product, process, and piece of equipment announced in the past 12 months, but the author has endeavored to incorporate in this review most of those items likely to be of greatest interest to readers of TEXTILE INDUSTRIES.

Fibers and yarns

Natural Fibers. Although scientists in laboratories sponsored by government agencies as well as those supported by educational institutions continued to explore structure and chemical reactions of the natural cellulosic fibers, there was a dearth of information released on research achievements in that specific area during the past year. This may be attributed to the fact that more efforts were directed toward the chemical modification of spun yarns and fabrics made from those fibers.

The old slogan "If you can't lick 'em, join 'em" seems to be applicable in the continuing battle between the natural and man-made fibers. What was described as the heart of a new cotton picker is a grooved rubber belt reinforced with nylon. Last summer an experimental machine was tested against a crew of hand pickers in a field of cotton which had just been mechanically picked; it proved to be far superior in reclaiming scattered bolls of cotton from the ground.

Not to be outdone by occasional reports of improved yields of American cotton crops, Moscow Radio was credited with the news that experiments in artificial ripening of cotton in the U. S. S. R. resulted in about a 10% gain in the quantity of fiber in the bolls, while seed oil content also increased substantially. The suggested requirement of about 25 sq yd of heated premises for every acre may have been responsible for intensified efforts to explore outer space.

Supported by a grant from the National Cotton Council, a new research project was initiated at the Texas Agricultural Experiment Station to determine means for getting better cotton defoliation. Stimulated by growing evidence of the damage incurred by overdrying in the gin, a newly developed modification of the conventional dryer made practical the maintenance of uniform desired output temperature with incoming temperature kept low enough to avoid damage. Both American and German firms were reported to have shown interest in the new pineapple fiber being recovered from pineapple leaves at a South African research station. Samples of fiber were under evaluation for use in apparel fabrics in Germany, but no further reports were noted in the literature to indicate whether or not the undertaking was fruitful.

In January a report was published on results of a study of the application of various formulations of synthetic latex and DMEU resin to cotton carpet yarns to improve resilience. While the findings were encouraging, it was noted that soiling of carpets made with the treated yarn was greater than that encountered with untreated yarns. A review of two types of products which may be made by partial carboxymethylation of cotton showed promise in serving in certain end-use items at costs which were not excessively high.

Means for providing a unique solution of the seam puckering problem was revealed in a patent issued early in the year to a large shirt manufacturer. Increased stretchability of a cellulose thread was obtained by application of mercerizing caustic, rinsing free of tension, drying and applying a coating of water-soluble and nonelastic adhesive. A research project to investigate the possibility of processing cotton yarns to make them suitable for crepe apparel fabrics was initiated at the Philadelphia Textile Institute last summer.

Fighting to overcome one advantage claimed for the man-made fibers, brighter wool carpeting was said to have been achieved by one manufacturer through improved scouring of the wool prior to dyeing. What might be described by the modern psychiatrist as a crutch for an ailing patient was the report of growing business in the English worsted trade in utilization of 75-denier monofilament nylon core yarns for the production of manageable worsted yarns as fine as 2/80s for the popular light-weight suitings.

A new process for mothproofing and dyeing wool was the subject of a U. S. patent issued to a Chicago company last July, while just a few months ago a nontoxic spray

achievements in 1960

was developed at the University of California for the protection of fabrics against insect damage. The chemicals simulate the vitamins and amino acids needed by pests, but since they do not provide the nourishment, the insects are said to die of malnutrition. Assigned to the Du Pont Co. was a British patent which described the modifying of wool fibers in a fabric to stabilize it against shrinkage in repeated washings and to reduce unravelling at the edges as well as pilling. The fabric is first impregnated with an aqueous solution of polyethylene glycol, then subjected to ionizing radiation while enclosed in aluminum foil.

Later in the year, the U. S. Dept. of Agriculture was credited with the discovery of a simple treatment to shrinkproof wool by covering the fibers with a very thin coating of a polyamide. No curing is required and fabric was said to show very little increase in weight while retaining its original soft hand. More recently a patent was granted to a research worker in the same department laboratory on a process for treating wool to increase its shrinkage properties. This was achieved by carding with wires the sides of which had a finely pitted surface designed to selectively engage the scale formations and smooth the fibers without causing excessive damage.

The QM Corps at the Natick Research & Engineering Command disclosed a new chemical modification, "Tan-O-Quil-QM," for the treatment of feathers to impart water repellency, improved filling powers, and ability to combat micro-organisms that build up in wet pillows, resulting in bad odors and deterioration. While this is not a textile development, the widespread use of cellulosic and synthetic fibers in pillows, sleeping bags, and comforters justifies calling attention to this technique because of its possible effect on markets for such fibers in certain applications. In Japan it was rumored that a patent application covered the resin treatment of raw silk yarn to yield a softer hand, resilience, and bulk.

Man-Made Fibers. The introduction of completely new man-made fibers in the United States came to a virtual standstill during 1960. Nevertheless, there was no let-up in the efforts of the fiber producers to improve upon existing fibers by various modifications, and additions to their families appeared almost every few weeks. Solution-dyed Acrilan acrylic fiber made its bow at the beginning of the year, as did spun-dyed black Vycron and Kodel polyester fibers. Later in the year Eastman offered brown and navy spun-dyed Kodel.

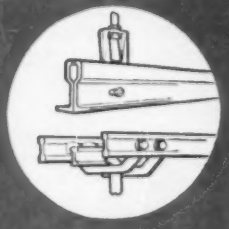
Described as possessing "built-in" whiteness and said to provide increased comfort in apparel worn in contact with the skin was Du Pont's Type 72 Orlon staple for blending with cotton. Type 28 Orlon fiber, reported to have a very low coefficient of friction and available in 8.5 denier-per-filament only, was first publicized at the Canadian Textile Seminar at Kingston, Ont., in September. New style effects in sweaters were said to be obtainable and price comparisons with mohair implied that hand was similar to this more costly natural fiber.

Also in the acrylic family, Dow's Zefran was made available in special blends of deniers for use on the wool system and with cotton. Last summer a New York engineering firm announced the development of a patented low-cost and fully automatic process for the polymerization and spinning of acrylic fibers. In Germany the Bayer Co. offered "Dralon" acrylic in continuous filament form. Produced in Switzerland, "Metafil" metallic yarn was described as being stronger, more pliable and up to 30% cheaper than comparable yarns. Base is aluminum and a viscose covering was said to account for better than usual pliability and strength.

Nylon, long maligned for its inclination to emulate its human creators in growing gray with age, took on a brighter and whiter outlook on life with the announcement of two producers. Enka offered its "Blanc de Blancs" extra-white yarn as best suited for lingerie materials, and Du Pont's Type 91 was heralded as a whiter nylon for textured circular-knit foundation fabrics. Other developments in this pioneer synthetic fiber included

Further information on any of the research achievements described by Mr. Goldberg in this article can be obtained by writing The Editors, Textile Industries, 806 *Peachtree St., N.E., Atlanta* 8, *Georgia.*

THE TRACK THAT NEVER WEARS OUT



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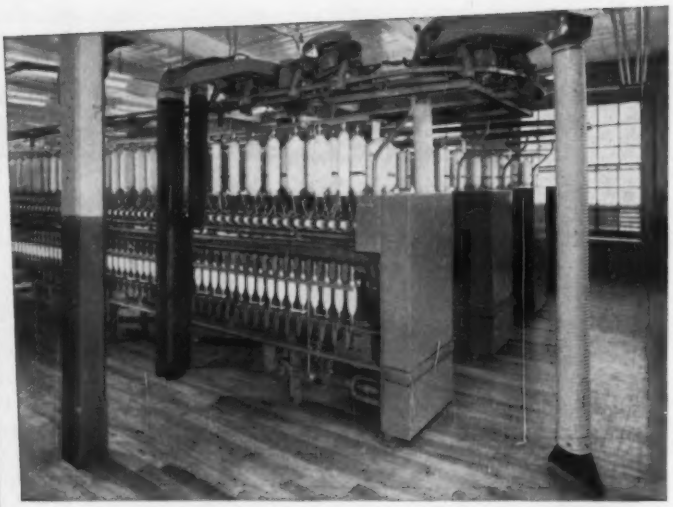
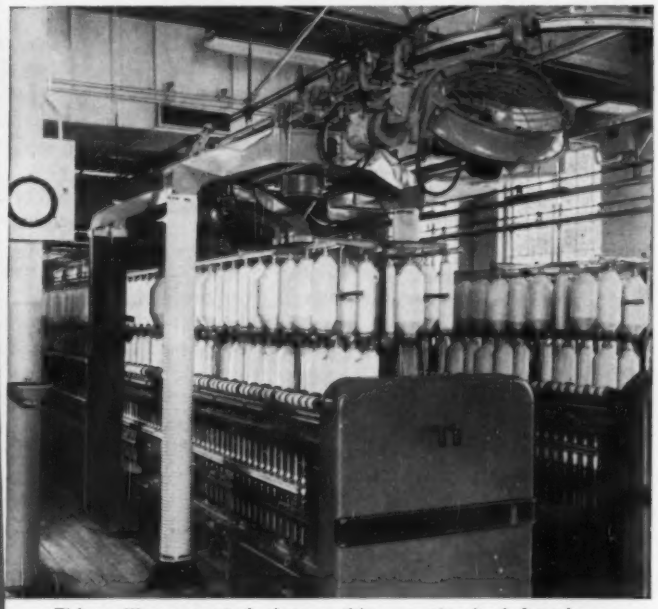


This creel mounted cleaner rides smoothly on Tri-Rail track and can never fall off. The three rails are rolled from high carbon steel.



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Du Pont's Type 288 for texturizing, featuring improved bulk, dye uniformity, and strength retention; Chemstrand's higher melting nylon for industrial applications, similar to Du Pont's "HY-1;" and, designed for the carpet trade, a textured-type staple and tow from Du Pont, not unlike their Type 501 textured filament nylon.

"Antron" and "Cadon" were the names adopted by Du Pont and Chemstrand respectively to identify their multilobal nylon filament yarns characterized by a more silk-like hand and superior cover. Two patents describing a trilobal cross-section filament of a synthetic polymer were assigned to Du Pont in June. Allied Chemical Corp. announced plans to enter the field of apparel-denier filament nylon yarns last March, and Firestone Tire and Rubber Co. began production of monofilament and multifilament nylon yarns in their own plant. Last fall Du Pont made available 250- and 1250-denier monofilament Teflon fluorocarbon fiber at $35 per pound.

Published reports of progress in polypropylene fibers and yarns were limited to improvements in resistance to ultraviolet light degradation in monofilament yarns, the introduction of a monofilament slub yarn, and at least one patent applied for in Australia for making the polyolefin fibers dyeable. Beaunit Mills revealed plans to enter into the production of polypropylene fiber as did Canadian Celanese with "Propylon," while the Hercules Powder Co. applied for the registering of "Prolefin" as a generic name for stereo-regular polypropylene.

Other achievements in the synthetic fiber world were noted in patents covering the production of polychlorotrifluorethylene filaments, the continuous manufacture of crimped caprolactam tow, a process for producing polyester textile yarns with a metallic luster, a fiber composed of protein and carrageenin, and thick-and-thin melt-spun filaments. A fibrous product for high-temperature applications was "Tipersul" potassium titanate by the Du Pont Co., and another inorganic fiber reported to have the hardness of sapphire was developed by a Cleveland research firm.

Fiber forming materials under development in Japan included polyamino acid and polycarbonate, and one company was said to be going ahead with plans to produce a graft-polymerized fiber of rayon and acrylonitrile with characteristics superior to those of ordinary acrylics. A recently published communication from two Japanese research workers suggested that a combination cross-linking and nitration of rayon staple might be effective in improving wrinkle recovery and water resistance. An English report described a technique for irradiating nylon fiber and grafting with small amounts of methacrylic acid to modify its electrical properties and decrease solubility in all common nylon solvents.

A new entrant among the domestic cellulosics was "Avlin" cellular fiber by the American Viscose Corp., designed to contribute a firm, linen-like hand to fabrics, as well as for use in paper making where its self-bonding characteristics were regarded as unique. This same company adopted the name of "Avril" for the high-modulus fiber originally identified as "Fiber 40," and Courtaulds (Ala.) christened a similar competitive product "Moynel." A stronger Avril, capable of providing fabrics with dry and wet strengths equaling or surpassing comparable all-cotton constructions, was introduced in November. At about the same time, Eastman marketed "Diamond White," a blue-white solution-dyed acetate filament yarn, as ideally suited for bridal fabrics as well as for swimwear and foundation garments.

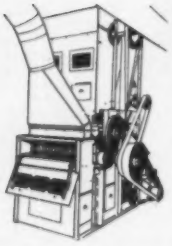
In England, British Celanese was reported to be offering spun-dyed "Tricel" triacetate as well as several novelty acetate yarns, while Courtaulds Ltd. was investigating a "low flammability" acetate fiber. A revival of interest in high-modulus rayon in Japan, the country where much of the early research in such fibers was initiated, was seen in the exhibit of fabrics of "Tufcel," described as a polynosic fiber, at the Osaka International Trade Fair.

Enthusiasm continued to run high in textured or bulked filament yarns with new and improved techniques developed both here and abroad. Details of a texturizing process for 200-denier and heavier nylon yarns developed by a Philadelphia concern were not disclosed, but a method of producing a bulked rayon yarn was described in a patent issued to American Enka Corp. in November. A mill noted for its activities in textured yarns developed a machine and process for making stabilized sewing threads of Dacron or nylon, resistant to shrinkage or stretch at temperatures of up to 350 F.

While it is reasonable to assume that much more development was being carried out in the field of textured yarns in the United States during 1960, the results of such research efforts were not made public. Foreign activities in similar endeavors were more highly publicized in the trade press. Last January it was reported that a Japanese concern had applied for patent rights to a new bulking process for filament nylon, carefully noting that although the process bore the name "Rivercroft" it was unrelated to the Bancroft method. A new post-relaxed false-twist yarn bulking process was the subject of a patent application in England while another English company introduced a novel yarn with what was described as a "wool-like" hand, believed to be produced by a combination false-twist and jet texturizing process. Reduced relaxation after knitting and increased softness of hand were attributed to Courtolon C20 bulked nylon yarn produced by Courtaulds Ltd., with wide applications in outerwear and underwear. Reports of various types of equipment used for bulking yarns in Czechoslovakia indicated that they were all quite similar to those in the U. S. A., Britain, and Western Europe, including conventional uptwisters and edge and stuffer-box crimpers.

1960 research results

Manufacturing methods and equipment



Fiber - Yarn. Warner & Swasey's "Servo-Drafter" retained features of the previous Pin Drafter but gave the advantages of precise weight control accurate to within 1%. The Leesona Corp. developed a new cone winder for spun yarns which could operate at speeds of up to 1200 yd per minute, forming packages up to 12 lb in weight. Automatic knot tyers at each spindle provide increased efficiency and great versatility in allowing winding of several different counts of yarn without affecting machine productivity. Described as a challenge to the cone winder, the French "Rocket" package winder was capable of producing yarn packages of up to 9 lb with winding speeds of about 1,000 meters per minute and claims for uniform tension and density.

An Alabama inventor designed a combination spinning and winding unit capable of drafts of from 6 to 100, taking rovings through a double apron drafting system utilizing a lightweight flyer. An automatic fiber setter with capacity of 1,000 lb was introduced by the Turbo Machine Co. and was first put to use by a southern mill for setting carpet yarn in skeins.

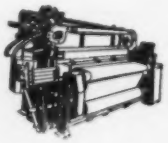
Among new processing equipment shown at the Southern Textile Exposition were the Arrow M-1 cotton spinning frame running at 15,000 rpm spindle speed, and the F. A. Young sliver-to-yarn spinning frame. The improved "Ideal Feathertouch" drafting system, operating at 750 fpm was credited with 87% higher output while requiring only 60% of the floor space of conventional four-delivery drawing frames.

Developments originating abroad included English Crosrol Cotton Web Purifier and Spinning Improver, a device to be mounted on the card frame between the doffer comb and calender rolls to destroy and remove trash, seed, and leaf particles left in the web after carding. Another English concern introduced a new device designed to overcome static electricity problems in processing some man-made fibers and fabrics, the power unit being capable of feeding three electrode bars to give complete cover for wide warps and fabrics. Also in the same country a method was patented for producing a 7-ply cored yarn on conventional ring doubling machinery, and the Seydel machine system converted 100,000 denier nylon tow to a level sliver with fibers of fairly uniform length distribution, the fibers showing an increased tenacity and reduced elongation at the break.

Tweedales & Smalley, Ltd., revealed results achieved with their sliver-to-yarn spinning system, featuring complete elimination of speed frames with attendant savings, less frequent creeling at the ring frame, and yielding yarn of superior strength and regularity. Elimination of the picker lap and continuous processing of cotton from opening through carding was promised in a development of the American Rieter Co., discussed at the 7th Canadian Textile Seminar. The opening-picking-carding organization, eliminating conventional blending and feeding the cards automatically, was operating in only one pilot installation and was not expected to be available in the United States until 1961. A German inventor received a U. S. patent on a pneumatic spinning device in which the fibers fed into one end of an elongated tube are twisted into a yarn by tangentially introduced air currents.

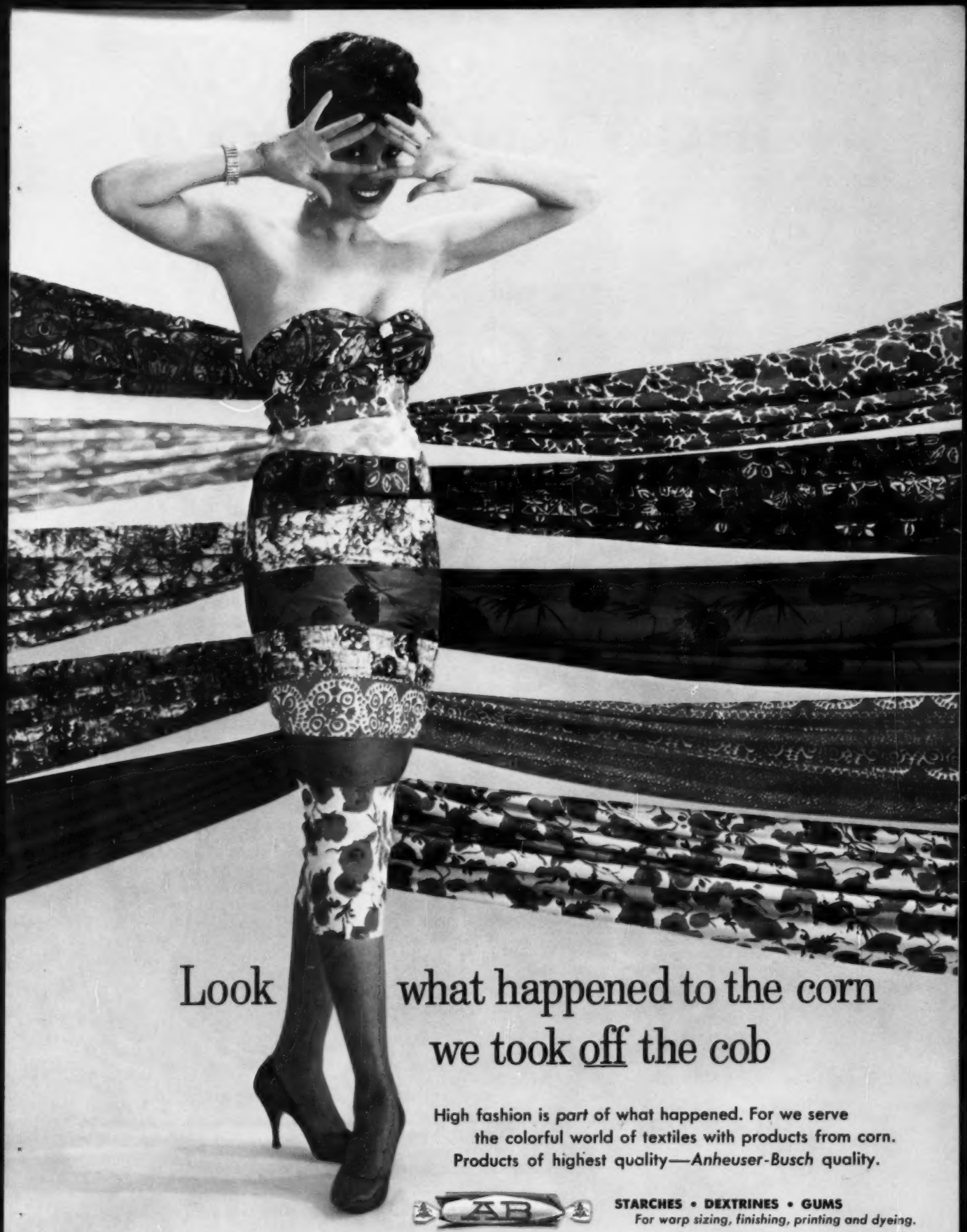
Automatic doffing equipment held much of the limelight at last year's textile shows. The Spanish Treufus machine shown publicly for the first time was said to handle 6,000 to 7,000 bobbins per hour with a doffing time of two minutes. Still another automatic doffer, the Bahnson "Doff-O-Matic," made its debut on a movie screen. The portable device, not yet ready for an "in-person" presentation, was represented as being the most compact of any in existence, running on an electrified rail with an estimated doffing time of 100-200 bobbins per minute on a single side of the frame.

Some details of the Japanese Toyobo-Howa so-called "continuous automated spinning system" for producing carded yarns were revealed in November. There is no formation of a picker lap and a super high-draft sliver-to-yarn spinning system capable of drafts of from 300 to 500 eliminates the roving operation. It is claimed that labor savings may be as high as 80% from bale to drawing and 40% in subsequent spinning and winding operations. Sliver uniformity is regulated by a servomechanism and doffing is automatic. Another Japanese contribution, exhibited in Atlantic City, was the Mitsubishi pot-type air spinning frame, making possible the tripling of worsted spinning production without any increase in floor space.



Yarn to Fabric. Judging from reports in the literature, the number of foreign developments in warping and slashing exceeded those on the domestic front in 1960. A southern mill designed a simple control to maintain starch level in back-sizing equipment, consisting of two probes immersed in the starch bath. An electric circuit is broken when the starch drops below one probe and the starch feed valve is actuated until both probes are again covered with starch. Details of a desizing test to help determine optimum conditions for efficient desizing operations were published in TEXTILE INDUSTRIES in November.

An improved Swiss Ruti warping machine gave better accessibility of the warp for the operator and a maximum degree of automation. The British Shirley stretch regulator was offered to provide preset, continuously variable stretch control applied to the



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warp between the squeeze and draw rolls. Also of English origin, a single-process sizing and dyeing machine was introduced, primarily for use on lining or interlining fabrics. The process was said to be applicable to cotton, spun rayon or filament yarn warps, the dyestuffs being put into the size box providing a semi-fast range of colors from cream to medium shades. Described in a German textile journal last January was a unique method for determining shuttle race curve and for pick adjustment which utilized a spraying device in place of the pirn to mark the warp threads of the upper shed.

Five new models of Draper looms, including three types of shuttleless looms, were exhibited in Atlantic City in May. Among new loom accessories publicized during the year were a compact selvage trimmer and a new selvage shear designed for high speeds, particularly as encountered on the Draper shuttleless loom, and an English improved warp-stop motion. Modification of the beating-up and shedding motions in regular automatic looms was reported by the Japan National Trade Research Institute to permit speeding up loom operation to 300 picks per minute on 44″ width goods.

The first production model of a Belgian circular weaving machine, capable of weaving yarns of most fibers into cloth of light to heavy constructions in most common patterns with up to eight shuttles, was scheduled to be marketed by a Yorkshire manufacturer in early 1961. Available in this country through a Massachusetts concern, the Swiss SWM-Sample Weaving Loom permits the weaving of fabrics of from 2″ to 20″ in width in a wide variety of effects through use of electromagnetically controlled harnesses without changing the card bearing the ground weave or the draft. The loom is furnished with two warp beams, 24 harnesses, and four shuttles and a sectional warper has a creel with a capacity of 35 cross-wound cones or flanged bobbins or 40 pirns. Another Swiss company exhibited a novel single-shuttle automatic terry towel loom equipped with an electromagnetic device to permit weaving of a name in the fabric and effect a change from one name to another in a minute.

A Czechoslovakian warp knitting machine, said to resemble a Raschel machine in arrangement of yarn tensions and fabric take-up mechanism, was developed for the production of fleecy type fabrics. The ground structure is supplied as a carded lap with the ground yarns supplied on section beams mounted at the front of the machine. Cruising speeds are 300-500 courses per minute over a width of 1.8 meters. A description of what appeared to be a similar type machine under development by a Scottish company was published just a few months ago. This method also referred to the production of knitted pile fabrics by interknitting the threads of a number of warp sheets with a fibrous card web fed directly into a Raschel machine. It was suggested that the development would be most important in the field of floor coverings, but other possible end-products were blankets, bedspreads, and coatings.

An East German tricot machine was reputed to run at up to 1200 courses per minute with slide needles and lock wires operated on the coupled crankshaft system. Last summer the German Karl Mayer company announced that a two-needle-bar carpet Raschel knitting machine would be available in this country in the fall. Featured were widths of 129″ and 240″, improved-type needle bar, elimination of creels by use of warp beams arranged in separate frame behind the machine, and adjustable pile heights for high and low piles combined in one fabric.

The "Somcomatic" sweater knitter, manufactured in England, was claimed to double the output of conventional machines; and an English textile publication reported that a new Italian machine was capable of making a complete seamless stocking in three minutes with operation described as being on the principle of continuous rotation.

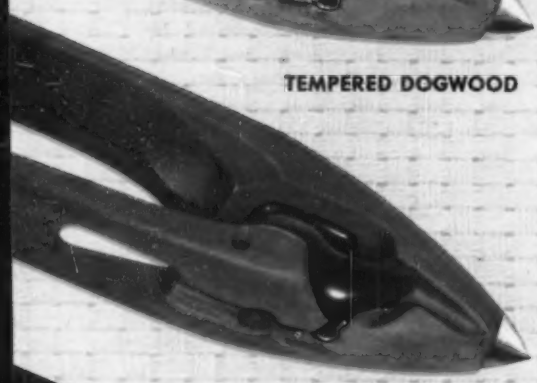
Another Italian achievement was the "Selecto-Finisher" automatic seamless hosiery inspecting machine designed to trim, inspect, and select up to one stocking every five seconds. Operated by two girls, it was reported that need for inspection tables, scissors, or trimmers was eliminated and reduced handling, minimized damage to the hosiery. An American company was said to be the owner of international patents on a Belgian electronically controlled fully-fashioned hosiery machine. Operated by an "automatic pilot" with push-button control for adjustment of type, size, and length of stocking to be knitted, a working model, manufactured in Belgium, was to have been ready for demonstration last October. First shipment of seamless hosiery machines was made by the Textile Machine Works early last year.

The British Rayon Research Association made available a "Projectoset" instrument for enabling an accurate record to be kept of settings of knitting machine elements, and the "Fryma Extensiometer" was disclosed as a device for determining the amount of extensibility of glove fabrics and similar materials. The British Hosiery and Allied Trades Research Association reported commercial development of a positive feed system, an instrument to measure kinetic yarn friction, as well as methods for determining crimp rigidity and shrinkage in high-bulk acrylic yarns. This research organization was also active in studying methods of lubricating worsted knitting yarns, the effects of steam setting and dry heat treatment on certain dyestuffs, and lightfastness of fluorescent brightening agents.

(The second installment, which includes 1960 research results in wet processing methods and equipment, will appear in the February issue. For more information on any development mentioned, write to The Editors, TEXTILE INDUSTRIES, *806 Peachtree St., N.E., Atlanta 8, Ga.—The Editors)*

1960 research results

TEMPERED DOGWOOD



DURAWOOD

DURAWELD

DURAMOLD

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Cost Less In The Long Run

Southern Shuttles are the answer to demands by textile mill men for longer, trouble-free shuttle life and better quality weaving. Here are examples of Southern's Quality line.

TEMPERED DOGWOOD—The finest natural wood shuttles treated with Southern's exclusive tempering process, making them extremely tough, wear-resistant and stable.

DURAWOOD—Southern's Tempered Dogwood shuttles further improved by an exclusive process of compression under heat. They are longer lasting, fracture-resistant, and slightly denser. They provide 50% greater life expectancy at a very nominal additional cost.

DURAWELD—These shuttles offer 100% longer life expectancy with a very moderate weight increase. Greater strength is assured through use of tempered dogwood end blocks for resiliency and tip retention, permanently bonded by an exclusive Southern method to long wearing wall sections of laminated wood or plastic.

DURAMOLD—Made of Westinghouse Micarta, remarkably strong, grainless molded plastic. Duramold shuttles last 3 to 4 times longer than natural wood shuttles, require less maintenance, reduce down time and weave better cloth. These are absolutely the finest shuttles on the market today.

SOUTHERN has a complete line of shuttles for you to select from—any size, any shape, any type, for any loom. You name it—Southern has it. Many standard sizes are in stock for immediate delivery.

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TEMPERED — QUALITY Stehedco CONTROL — STEHIDE

Other Plants and Offices: Granby, Quebec, Canada—Lawrence, Mass.—Greensboro, N. C.—Atlanta, Ga.—Textile Supply Co., Dallas, Texas—Albert R. Breen, Chicago, Ill.

Spinners swap tips

Division Chairman Herman Cone, Jr., conducted the meeting

Dan River Mills' Allen Simpson was leader of the spinning discussion

Langdon Joslin, Dan River Mills, was re-elected vice-chairman

Charles Ward, Highland Cotton Mills, was re-elected secretary

N. C. and Va. mill men discussed automatic cleaning, roll picking, creeling, and training spinners

Staff report

MOST MILLS having automatic sweeping and cleaning equipment in the spinning room have been able to reduce manual sweeping by 50 per cent, according to reports in the discussion group at the fall meeting of the Northern N. C.-Va. Division of the Southern Textile Association, held at the fall meeting of the Northstill sweep floors manually to some extent. Back alleys and post alleys are usually swept once each hour to supplement automatic cleaning.

Allen Simpson, Dan River Mills, conducted the session on spinning room practices. Several other discussion groups were held.

Sweepers are usually given on-the-job training by putting the trainee with the best sweeper for three to four days of training, according to mills represented in the group. The sweeper's duties usually comprise a combination job.

Roving haulers need more training; they must not be color blind so they can read color coding to distinguish different yarns. The supervisor must follow up to see that new employees know the job after the training period. Roving haulers handle tangled roving which must be kept segregated to prevent mixed numbers. One mill used different sized bobbins to identify different work in process; another identified the work by using tickets on each container, instead of tinting the stock or using colored chalk.

Older spinners sometimes move on to the job of roll picking. This procedure provides qualified spinners to fill in when an emergency occurs. Roll pickers are usually instructed to keep the metal picker off the bottom steel roll as well as other rolls and not to sling oil into the work and onto aprons. One mill reported using no pickers at all in cleaning, and all steel rolls were cleaned separately.

Twenty-three frames, each having 224 spindles, is one cleaner's job on 30s filling, 2¾ gauge frame. Another frequency was reported on Casablancas drafting where top rolls have to be oiled. Twelve frames, each having 240 spindles on combed yarn is one job, according to the spokesman. On 12.5s carded filling yarn, 15 frames comprise a job.

Another mill reported an assignment of 20 sides per day for cleaners, and rolls were picked every 24 hours on carded work. Steel roll ends were cleaned by roll pickers in some mills. Spinners clean back and front guides and ring rails.

Cleaning often makes thick-and-thin yarn by changing roll settings, one mill man said.

Spinners learn on warp spinning which runs slower and does not doff as frequently as filling spinning. Ends should be twisted up instead of lapped up "sling shot" style, this speaker indicated. Learners are put with experienced spinners for several days, then assignments are increased as quickly as the apprentice can take care of the work.

Another mill started learners on filling on the assumption that mastery of this work proved qualification for any kind of spinning. Those who learn on warp spinning don't want to change to a faster job, this man said.

Creeling. The problem of making slubs and gouts as a result of creeling in roving was discussed. If the tail is no longer than the roll settings when creeling in, there is no problem with slubs, it was revealed.

Continued on page 91

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by Richard E. Stockwell
Exclusive

Ivan's Other Shirt: Tomorrow Maybe

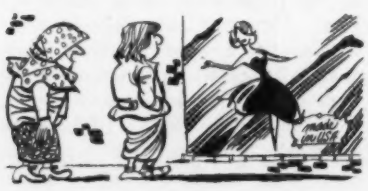
READY-MADE clothing is a luxury in Russia. A new suit may cost 1900 rubles, a simple dress as much as 500. But since the average worker in the USSR earns eight or nine hundred rubles a month ($80-90 at the current rate of exchange), and must spend half of that for food, he has little left with which to buy clothes.

The Russian people for the most part find it far better to make their own clothing, so for that reason (especially in the more provincial cities) it is not uncommon to see a Russian carrying a new 800-ruble foot-powered sewing machine home on his back.

Children fare best. In Moscow's new Children's store there are many ready-made dresses and knee-length suits for small children. An all-wool jacket and matching knee-length trousers for a seven or eight-year-old boy is priced at 270 rubles ($27.00).

However, very few children on the streets—even in Moscow—are dressed as well as the displayed clothing suggests they could be. Most appear to wear home-made clothing, or they wear combinations such as home-made trousers, machine-made shirt (without necktie), and perhaps a sweater or store-purchased jacket. This is true of all ages from toddlers up to 20 years.

Girls usually dress in simple home-made skirts with white cotton blouse (that also may have been made at home), or nylon blouse purchased for about $15.00, plus a jacket or sweater and with a white scarf over their heads.



The USSR citizen is the first to admit that he is not the best-dressed man in the world. But he does have high hopes for better textiles and better clothing. This Russian and his wife are admiring a display of cotton, wool, nylon, rayon, and "capron" (this one is not in the stores yet) fabrics at the Agricultural and Industrial Exhibition in Moscow.

Production of some new fabrics has been greatly expanded in the USSR in the last two years so that a wide range of cotton prints has become available. As a result, the women have blossomed with new vari-colored and patterned skirts.

As recently as 1957 it was hard to find even a dozen different cotton prints in bolt lengths in Moscow's GUM department store. Today, as many as 108 different bolts of cotton prints are displayed in the Kiev department store. The prices range from 86 to 108 rubles ($8.80 to $10.80) per meter (approximately 1.2 sq yd).

Some ready-made dresses are seen on the streets during the day; more will be seen at a concert in the evening. Such dresses usually are of rayon acetate (viscose, as the Russians call it), and usually they are of one color with short sleeves and a belt. These cost $50 each when purchased in Kiev, for example.

Nylon stockings now are common in Russia and apparently are of fair quality. The prices vary from about $0.70 to $1.50 per pair.

Men's socks, of poor quality and shape and suitable for summer wear only, are 50 cents a pair. But they are available in dozens and dozens of patterns and colors—many of them off-shades.

Shoes are neither stylish nor of good quality, and the best ones cost about $40 a pair for either men or women. In the summer the Russians usually wear sandals that cost $18 to $25 per pair.

The tourist in the USSR is made conscious of his footwear by Russian stares as he walks along the

street. There are no dress shoes, in the western sense of the word, to be found in Russia.

The men apparently will be the last to benefit from Russia's new emphasis on better clothes. Their ready-made suits seldom are seen in stores, and when they are the prices are always high—from $110 to $190. In the U. S. equivalent suits can be had for half the price. Thus, as a general rule, Russia's men are the poorest dressed of the lot, their clothes often consisting of old suits or combinations of repaired slacks, jackets, and open shirts.

Men's overcoats are made of heavy materials, machine-tailored, with no hand stitching. The best, of heavy cloth, cost $110.

Suit fabrics, usually of a shark-skin type, are available at $10.00 per meter (1.2 yd) and up. Apparently some men's suits are made at home.

The best shirts, printed pattern, cost 103 rubles, or $10.30. Medium-price men's shirts were about half that amount.

Rayon shirts, complete with extra collar and cuffs, were priced at 138 rubles, or $13.80. An equivalent in the U. S. or Canada would be about $4.00. Russian neckties, of poor quality, are 28 rubles, or $2.80 each.

There are no smart shops in Russia featuring brands of clothing. The customer must go to a department or general clothing store, accept what is available, and like it. Window displays are few and far between. The stores only occasionally feature new clothes and styles.

A customer may have to get into a line and wait an hour or more before he is admitted into the clothing section of a department store, where the limit is one customer per clerk at any one time. And once he has made his purchase, strictly for cash, he cannot exchange it after he leaves the store.

Cotton, silk, linen and wool are the principal fibers used. Cotton production is being expanded in central Asia by employing better agricultural methods and irrigation—some of the largest spinning mills are in south central Asiatic Russia.

The most recent Soviet figures (for 1958) indicate productions of 4.6 billion square meters (about 5.5 billion sq yd) of cotton fabrics, 663 million square meters (about 796 million sq yd) of silk fabrics, 484 million square meters (about 581 million sq yd) of linen, and 416 million (about 581 million sq yd) of woolen fabrics. Quantities of synthetics were so low they were left unreported.

Nylon is restricted largely to stockings, women's blouses (ready-made), and to men's shirts. Rayon is used for dresses, shirts, undergarments, and for men's fancy pajamas, which are all the rage in the resort cities along the Black Sea. There the men wear loud-colored pajamas (up to $25.00 per pair) all day long.

An acrylic fiber called "capron" by the Russians is being produced, but so far has been limited to public displays, such as at the Agricultural and Industrial Exhibit in Moscow.

The new seven-year plan, on which the Russians now are working, calls for a substantial increase in the production of synthetic fibers. However, the Russians do not as yet appear to have more than pilot-plant production of fibers other than nylon and rayon, so how rapidly they will be able to work into the new synthetic materials remains a moot question.

Quick method for counting neps

■ VARIOUS ELECTRICAL means are available for counting imperfections in yarn, but few are available for stock in the preparatory stages. At Whitin Machine Works, a method for counting neps is used that may be employed by a mill without the need for any special apparatus.

All counts are made on the basis of neps per 10 grains of sample, which may be taken from any points such as the bale, lap, sliver, or roving. The only requirement is that the sample be truly representative of stock where the specimen is taken. Naturally, if a biased sample is used, the results will also be biased. Care should be taken that the sample to be counted is made up of a sufficient number of smaller parts properly blended.

The actual counting of the neps becomes a relatively simple matter. The prepared sample is held between the thumb and forefinger with a sufficient length of stock projecting so that small webs of fibers might easily be removed when grasped by the thumb and forefinger of the other hand. If done over a dark background, any nep becomes clearly visible and easily counted. While all operators might not agree exactly on what to call a nep, differences will always be relative and ratios between operators will generally hold constant.

Ordinarily one hundred neps are counted and this loose mass of fibers is then weighed on a grain scale. From its weight the neps per ten grains are calculated and this figure is used as a basis for evaluation. If the nep content of the sample is high, two hundred neps are counted, otherwise the quantity of fiber for weighing would be rather small and an accurate determination would be more difficult. Greater accuracy is possible when larger samples are used, but the one hundred and two hundred counts are sufficient for normal required accuracy.

Since determinations may be made at any of the stages in the manufacturing process, it is quite possible to study the effect of each operation on the increase or decrease of nep content. Ordinarily a count can be made in about five minutes and since the small grain scales can be set up at any point in the mill, it becomes quite possible to check quickly and with sufficient accuracy any machine in the mill. Carding and combing are two fertile fields for study. The neps remaining in the stock at these points carry through into yarn since none of the operations following tend to remove neps; in fact each operation tends to increase the number slightly.

From *Whitin Review*.

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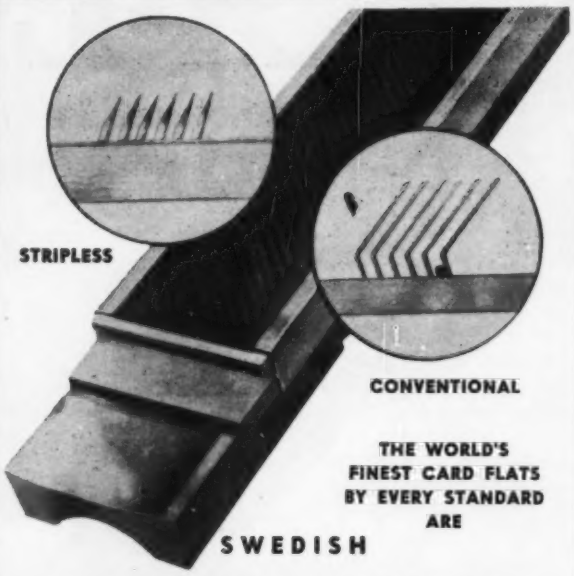

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Short period of adjustment seen for cottons

■ SUBSTANTIAL curtailment of cotton mill operations occurring well before exhaustion of existing order backlogs, and steady reduction of distribution inventories in meeting a high retail offtake, are combining to shorten the current period of adjustment in this industry.

W. Ray Bell, president of The Association of Cotton Textile Merchants of New York, writing in the organization's 29th annual survey, estimates that curtailment has withdrawn about 200,000,000 square yards from production in the third quarter of 1960, with the probability of like or greater curtailment in the final quarter. "This realistic approach is bound to hasten a solution to the problem of market stability," he states.

This is in contrast with first half 1960 with its continuation of the highly satisfactory market performance in 1959. Last year profitwise was the best since 1951 for the industry, with a 9 per cent increase to a new record high in hours run per average active spindle, and production of 11,230,083,000 square yards, the highest since 1956. Early 1960 witnessed further improvement in this high rate of activity, with a rise of 2.5 per cent or about 121,000,000 linear yards in production over first half 1959.

On the other hand, 1959 set another record when imports of countable cotton cloth increased more than 70 per cent to 240,372,000 square yards from 1958, compared with only 7 per cent improvement in United States output. This has been aggravated by further import increases in 1960. For January-June, 1960, imports were 252,295,000 square yards—more than three times the 81,730,000 record of first half 1959. The month of June, 1960, alone showed 50,720,000 square yards, exceeding annual imports for any year between 1947 and 1953.

"In addition to this stupendous volume of piece goods imports, now arriving at an annual rate of 486,000,000 square yards," the report states, "it is reckoned that another 400,000,000 square yards of woven cotton cloth will enter our markets from overseas sources in the form of wearing apparel and made-up household goods." In this category Hong Kong and Japan supplied a major part of the 318,522,000 square yards which entered in 1959. Some 20 areas of the Far East, Europe, and including Egypt are large suppliers of cotton cloth and cotton products today.

Where in earlier years import competition was felt in segregated areas, and hence was not appreciable in effect on over-all supply and demand relationships in the market, the report continues, the current annual rate of more than 800,000,000 square yards "represents a sizable displacement of American industrial activity and employment. The threat of potential disaster can no longer be minimized, because it extends beyond the bounds of stability and growth of the American textile industry to its very existence as an asset to our national economy."

TEN YEARS OF COTTON TEXTILES

Data assembled by The Association of Cotton Textile Merchants of New York from Bureau of the Census reports and information obtained through the courtesy of machinery makers.

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
EQUIPMENT											
COTTON SYSTEM SPINDLES											
Spindles in place at beginning of year	23,342,000	23,113,000	23,178,000	23,131,000	22,906,000	22,560,000	22,226,000	21,553,000	21,075,000	20,689,000	20,111,000
Increase or decrease from preceding year	−409,000	−229,000	+65,800	−47,000	−225,000	−346,000	−334,000	−673,000	−478,000	−386,000	−578,000
New installation, additions and replacements	649,780	771,065	295,642	267,328	219,282	321,920	403,916	190,144	72,708	†278,832	
OPERATION											
COMBINING COTTON ONLY											
Average number of spindles active on last working day of month	20,456,000	20,662,000	19,944,000	20,051,000	19,383,000	19,137,000	19,064,000	18,278,000	17,671,000	17,638,000	
COMBINING SHORT STAPLE WITH COTTON OR BLENDS											
Average number of spindles active on last working day of month	1,295,000	1,261,000	1,337,000	1,323,000	1,327,000	1,541,000	1,534,000	1,582,000	1,647,000	1,636,000	
ALL COTTON SYSTEM OPERATION											
Average number of spindles idle on last working day of month	1,372,000	1,264,000	1,887,000	1,572,000	2,015,000	1,628,000	1,234,000	1,443,000	1,539,000	1,036,000	
Spindle hours run:											
On 100% cotton	117,753,000,000	118,163,000,000	109,986,000,000	118,647,000,000	108,930,000,000	116,809,000,000	115,210,000,000	107,099,000,000	103,494,000,000	112,185,000,000	
On other fibers, blends	7,502,000,000	7,563,000,000	7,583,000,000	7,487,000,000	7,560,000,000	9,613,000,000	8,550,000,000	9,008,000,000	9,120,000,000	10,396,000,000	
Hours run per average active spindle	5,760	5,735	5,524	5,901	5,625	6,114	6,008	5,847	5,829	6,360	
MARKET											
COTTON TEXTILES											
Production in square yards	11,206,659,000	11,415,218,000	10,593,006,000	11,332,562,000	10,892,456,000	11,319,347,000	12,047,791,000	11,104,675,000	10,469,801,000	11,230,083,000	
Exports in square yards	558,678,000	802,427,000	761,595,000	621,005,000	605,047,000	537,493,000	506,570,000	547,889,000	500,932,000	472,285,000	
*Imports in square yards	47,799,000	45,779,000	36,337,000	64,300,000	73,484,000	133,252,000	183,248,000	122,447,000	140,996,000	240,372,000	
Available for domestic consumption	10,695,780,000	10,658,570,000	9,867,748,000	10,775,857,000	10,360,893,000	10,915,106,000	11,729,469,000	10,679,233,000	10,109,865,000	10,998,170,000	
Population at July 1st	151,683,000	154,360,000	157,028,000	159,636,000	162,417,000	165,270,000	168,176,000	171,198,000	174,054,000	177,103,000	
Available for per capita consumption in square yards	70.51	69.05	62.84	67.50	63.79	66.04	69.75	62.38	58.08	62.10	

*Countable cloths only. †Includes estimate for rebuilt spindleage.

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For further information use Handy Return Card, Page 121

Wash-and-Wear

(from page 68)

This is highly significant when related to cotton consumption and the future demand for easy care cottons.

Already approximately 52 per cent of domestic cotton consumption is in apparel. Cotton's share of the total market increased from 56 per cent in 1947 to 61 per cent in 1959.

Consumption of fabrics in apparel and household products where easy care is a consideration now is at the rate of 5.25 billion square yards annually. Consumption of non-cotton fabrics in these uses is nearly 2 billion yards. Thus, the gross potential for easy care cottons already is 7.25 billion yards a year.

The expansion potential in existing markets—equal to the volume of fabrics consumed less the current volume of easy care cottons—is about 5.25 billion square yards.

Three and one-quarter billion yards of this gain potential are in outlets already held by cotton. Two billion yards are in outlets held by competitors.

With the total market increasing, with cotton gaining in those markets where easy care is a big consideration, and with many factors favoring increased consumer demand for easy care products, the potential in this field looks bright indeed.

Orlon dyeing

(from page 74)

rolls. A very practical method of applying stress to high bulk yarns of Orlon during back-winding is to pass the yarn over opposing knife edges that provide drag with resultant high tension. Adjustments in distance between knife edges and angles can be made to alter yarn tension. Knives set vertically provide adequate stress for sweater yarns.

Running Conditions. The amount of tension needed depends upon the amount of stress required to return the yarn to its original round shape. Extremely high tensions cause high breakage and should be avoided. Satisfactory yarn tensions can be determined by heating skeins of various stress-bulked yarns in air at 220 F for about 15 minutes and comparing the bulk. The amount of bulking and softening of the skeins will be proportional to the stressing tension used.

Practical starting conditions for 2/20s worsted count yarns are provided by 35 grams of weight on the tension disk, knives set in a vertical position, and a yarn speed of 300 ypm. Should excessive end-breakage be encountered, the knives should be checked for alignment and nicks, and the yarn for uniformity and amount of finish.

A small amount of short fiber will be removed from the yarn as fly during stressing. The highest percentage of fly that has been encountered with 2/20s worsted yarn has been 0.5%. It is not necessary to use slub catchers since the knife edges are very effective for this purpose.

Stress-bulking seems to affect only flat yarns. Yarns from the outside of the package that are round are not changed in any way. Since package-dyed, stressed yarns, may have higher shrinkage than skein-dyed yarn, it may be necessary to knit with a looser stitch. This will allow for shrinkage during finishing.

Other than restoring the round cross-sectional shape and increasing the diameter, stress-bulking does not significantly affect the physical properties of the yarn.

Cotton crop

(from page 75)

obtaining parallel setting of back and front top and bottom plates on cards by installing Allen-head set screws in the plates to permit easy adjustment.

Flat strips taken out on metallic clothed cards amounted to about two per cent, and the clothing was roller-cleaned once a week. In one instance a half-pound-per-hour increase in production was noted from metallic clothing with no other changes being made.

Metallic clothing is seldom ground, but requires a rock grinder when necessary. One mill ground metallic clothing after two years of service; another had the clothing in use for three years without requiring such service.

Cards clothed with metallic wire require flat settings 0.003 inch higher than usual, one man indicated. If the normal setting is 0.009, it should be changed to 0.012 because if there is any rubbing contact the damage is more serious.

The installation of flat grinding stands on older cards improves the uniformity of flat-to-flat grinding but the cradle must be carefully maintained, one report stated.

The nylon bushing on the ratchet pawl wears out on late-model high speed drawing but the simple remedy is to replace the item without concern, everyone agreed.

Spinners swap

(from page 83)

Block creeling created no more waste than random creeling on three different counts, according to one report. Roving bobbins were exhausted to 1-1½ lays, and no knockoff counter was used, although the mill was in process of installing yardage counters for slubbers.

No one allowed spinners to double back while making cycles on assignment. This aggravates some lap-ups but has less over-all damaging effect than doubling back.

If there is a slight change from 15.2 ends down per thousand spindle hours on 40s combed stock, the spinners cycle can't be met but the procedure is kept in force with no doubling back, despite the longer time interval brought by the increased number of ends down, one report indicated.

Recalling the subject of teaching spinners, a spokesman said his organization had one spinner instruct all learners in several plants. The best spinner was not necessarily made an instructor, because attitude and ability to instruct were of more importance than spinning talent where training is concerned.

Doffers must learn spinning first, and doffers must be taught how to identify different frames and yarns positively, it was agreed.

Howard Barton, Fieldcrest Mills, was honored for his work in the division as secretary from 1942 to 1959 and for his enthusiasm and faithful service. He was presented a plaque in recognition of his outstanding contribution to the S. T. A.

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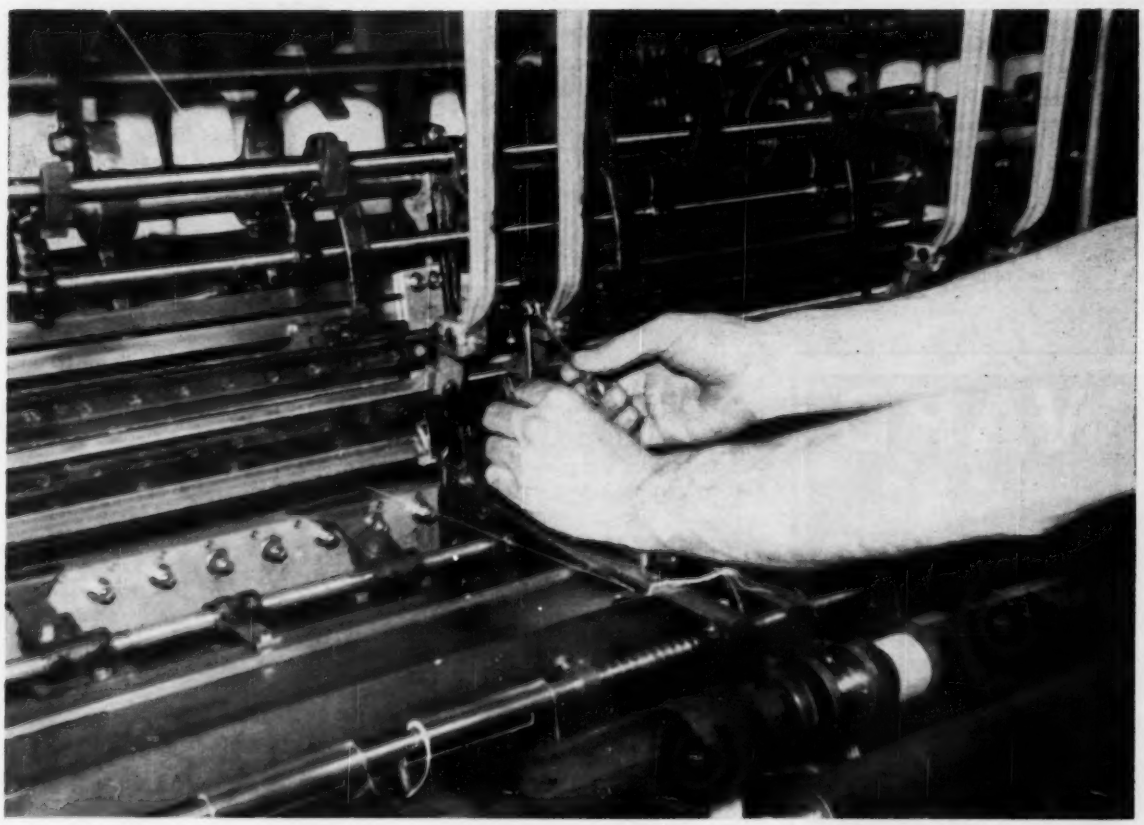
KNITTING SECTION



Low-cost way to keep hosiery quality up

by R. D. Brackett — Exclusive

QUALITY, being the primary basis of sales of ladies' nylon hosiery, is of the utmost importance today. Through lack of it, sales are being lost, and contracts cancelled in many instances.

Due to a decline in the sales of full-fashioned hose in the past few years and the narrow margin of profit today, the full-fashioned machines that are still in opera-

tion are sorely in need of reconditioning. At this time, reconditioning our machines is out of the question for most of us, so we just have to make the best of what we have.

Sleazy stitches, streaks, and tight sides are important components of bad fabric.

Due to wear in the sinker heads and cams, good quality fabric is more difficult to obtain than ever before.

Usually, adjustments can be made to compensate for worn cams by raising or lowering the bits of the cam or adjusting the position of the roller that works from the cam. A fixer needs only to use good, common sense to do this.

In the case of a worn sinker head, there is a real problem. There are several factors here that have to be taken into consideration.

There may be up and down play of the sinkers and dividers, and the sinker and divider slots may be too wide, and the presser edge

may be worn.

The sinker head should be replaced or reconditioned to properly eliminate trouble and bad fabric from the source. In most plants this can not be done due to cost, so we do the best we can with what we have.

Pull the needle bar down as low as possible, even below gauge, and run the knockover bar up as far as possible. Going to the extreme with either of these will result in cut holes and other defects, so there is a limit as to how far one can go with the needle bar and knockover.

On occasion, a home-made version of reconditioning the sinker head may help. This is not recommended as proper procedure, but in the case of necessity, it will work.

First, feel the amount of sinker play you have up and down on both sides and the center of the head. Dismantle the head and file the bottom of the plates from each end to compensate for this wear.

Do not file the tapered or topside of these plates—extreme caution should be taken to insure against filing too much because this may result in locking the sinkers and dividers in the head so that they will not move back and forth freely.

Next, file the presser edge using a fine file and extreme care. Use a straight edge to avoid filing it unevenly. The presser edge must be kept perfectly straight.

Nothing can be done to eliminate the side play in the sinker and divider slots; however, if the foregoing procedure is taken with care, a lot of extra production and good quality may be obtained from the worn equipment on hand.

Be sure the slur cam is properly squared, and maintain the proper clearance between the sinkers and verge plate during couliering. Check and replace all worn verge plates.

A light coat of needle oil applied to the sinkers, at least once each shift, also improves the quality of the fabric and at the same time helps reduce picks and pulls caused from handling the work.

Wear in the catchbar contributes to bad fabric, and this can be helped considerably by moving the catchbar approximately 0.020″ horizontally. The correct amount to move a catchbar is determined by gauge and the thickness of the sinker butt.

Combine all of these things and give them the proper attention and the fabric can to some extent be improved and controlled.

The future of the full-fashioned industry is at stake, and we should all cooperate to make our products the best that have ever been produced. If a customer buys several pairs of hose of inferior quality, she will naturally shy away not only from that particular make or brand but from full-fashioned hosiery altogether.

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Children's sock features wanted by pediatricians

■ A SURVEY of 5,000 pediatricians has been recently completed by the Durene Association of America. Purpose of the survey was to determine which characteristics in socks doctors seek out for their recommendations for infants' footwear, and which kinds of socks they recommend for a child's healthful foot comfort.

According to spontaneous comments returned on the questionnaires, pediatricians seek a sock with these features:

1. A sock that can be worn longer than the longest toe.
2. A sock that is extremely absorptive.
3. A sock that is extremely evaporative.
4. A sock that is of light or medium weight.
5. A sock that will not shrink.

Responses of the pediatricians reveal that 68% recommend socks of cotton and that half of these recommendations further specified socks of mercerized cotton. Woolen socks were recommended by 12% of the pediatricians and stretch socks were recommended by only 1%.

For further information use Handy Return Card, Page 121

Tips for making high quality, fine gauge tricot fabrics of nylon

■ THE TREND to finer gauge tricot machines and the constantly increasing demand for higher quality fabric have emphasized the necessity for accurate knitting machine settings, a recent Du Pont bulletin* states.

Position of Guides. Yarn passing through the guides of the tricot machine must bend to enter the guide aperture and then, after passing through the guide, must bend in the reverse direction to resume its downward path. This reversing of direction causes the yarn to protrude considerably on each side of the guide and fill up most of the space between the needles. Consequently, the yarn is constantly exposed to the hazard of shearing as the guide passes it through the needle spaces. By setting the guides high, the shearing hazard is reduced. It has been found that the "Guides High" setting, shown in *Figure 1*, gives a greater number of racks per end out than obtained with a "Guides Low" setting.

Both guide bars should be adjusted for height when the machine is stopped at that part of the stitch where the guides are passing *backward* through the needle spaces. The bottom point (6 o'clock) of the guide hole should pass exactly level with the needle throat, as shown for "Guides High" in Figure 1.

Warp tensions must be kept low to allow the guides to lay yarn around the needles. High warp tensions cause the yarn to slip off the needle beards and produce pin holes.

Sinker Position. The position of sinkers can be described only with reference to the needles. Depth of the needle in the sinker throat, observed when the rising needle heads are flush with the sinker tops, has been found to be the best measure of the degree of sinker advance.

Figure 2 shows needle settings which are (1) too shallow, (2) too deep, and (3) intermediate.

Best results with nylon are obtained with the "intermediate" setting, where the straight-line distance between the sinker throat and the needle is 0.024", measured along a line which is an extension of the long axis of the sinker slot.

*Bulletin N-133 (Oct. 1960) entitled "Knitting Tricot Fabric of Du Pont Nylon," a publication of the Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc.

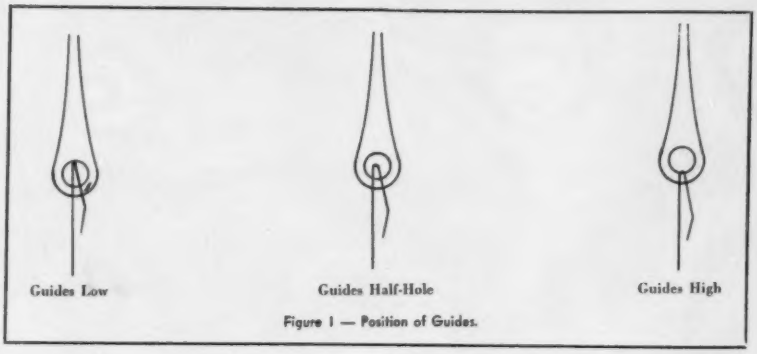


Figure 1 — Position of Guides.

Needle Design. Careful investigation has indicated that most broken needles result from mechanical fatigue of the metal in the needle throat caused by repeated flexing in the knitting operation. A wide-radius needle throat has proved to be the answer to this problem. Increased radius permits distribution of flex over a longer length of the needle head.

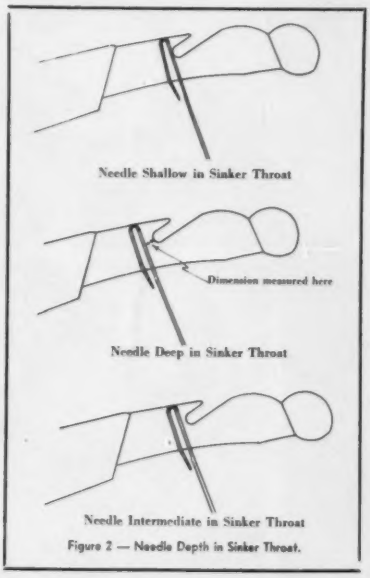
Wide-radius needles always should be used. Leading needle manufacturers carry this item in their lines. Currently, a needle having a .0195 inch radius throat is giving the best performance and least breakage.

Presser Bar Setting. Experience has shown the best setting of the presser bar to be 0.02" forward of the minimum *knittable* press. This point is reached by retracting the presser bar until needle loading* occurs, then advancing it just far enough to make knitting possible again. Then the presser bar is advanced 0.02" beyond this point by raising the presser cam roller 0.002". At this setting, top knitting performance is obtained with a minimum of needle breaks.

As to presser bar material, linen-base presser strips are preferred over the cheaper canvas-base type because of improved resistance to denting by the needles.

Sley Points. Sley points, if properly installed, can prevent countless yarn breaks caused by the tendency of yarn ends to bunch together and roll upon themselves as they pass over the tension bars. This rolling action is especially damaging to unthrown yarns in which exposed filaments usually strip back after breaking.

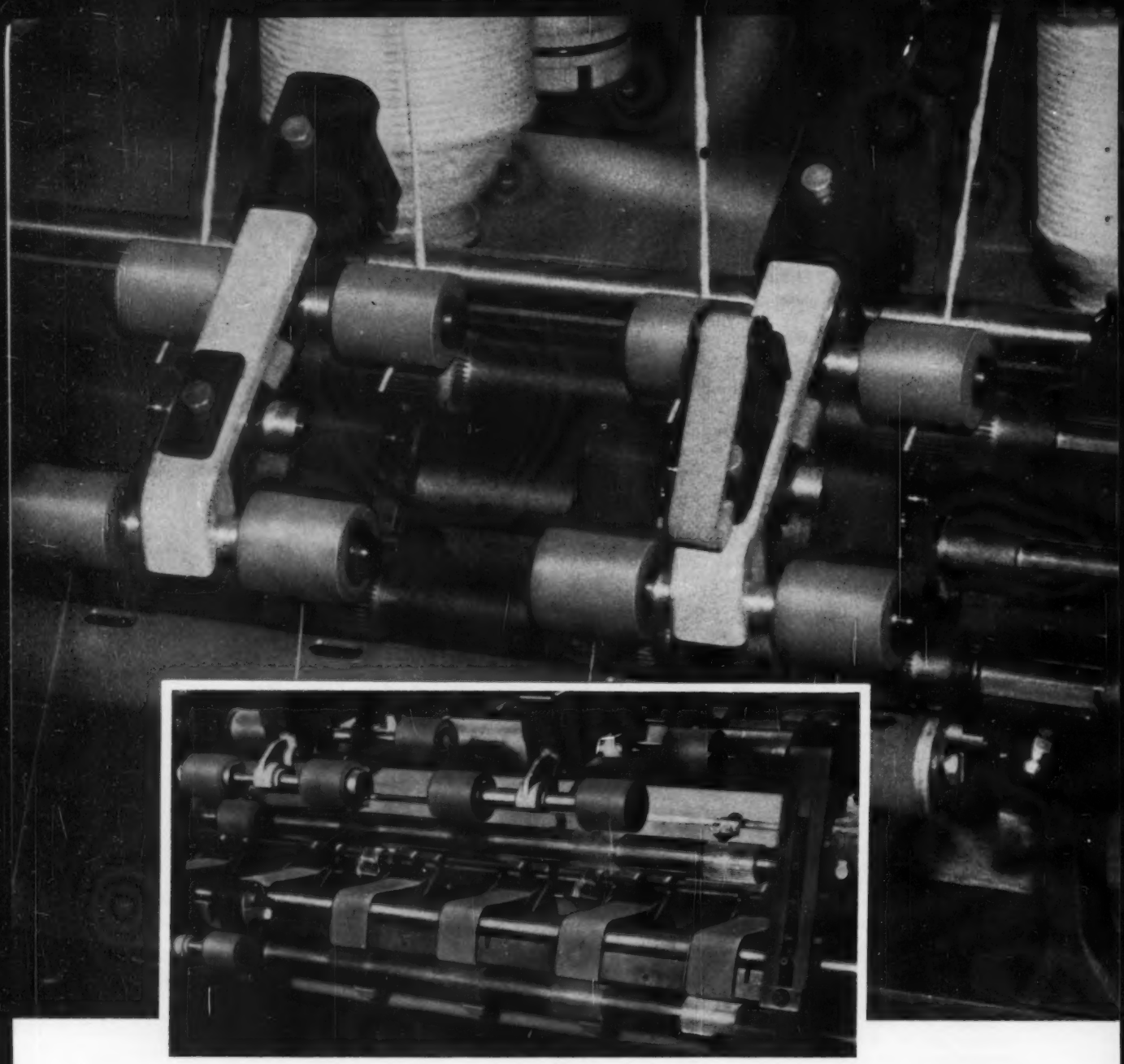
*A needle "loads" when its beard fails to close properly, building up stitches instead of casting them off.


Needle Shallow in Sinker Throat
Dimension measured here
Needle Deep in Sinker Throat
Needle Intermediate in Sinker Throat
Figure 2 — Needle Depth in Sinker Throat.

For sley points to be of value, they must be mounted *immediately behind the tension bar* for both warps. They should be mounted where they can separate the yarn ends just as they are about to pass over the tension bars. This requires that they be placed not more than an inch or two behind the tension bars.

Beam Ratios. A balanced stitch, obtained with proper beam ratios, helps to reduce edge rolling and impart dimensional stability to the fabric.

Tests conducted with two-bar 40 denier nylon jersey, 5¾" rack length, show that the best knitting performance and fabric quality are obtained with a beam ratio of 8.5 to 6. This ratio gives a front runner which is 1.42 (8.5÷6) times the length of the back runner.



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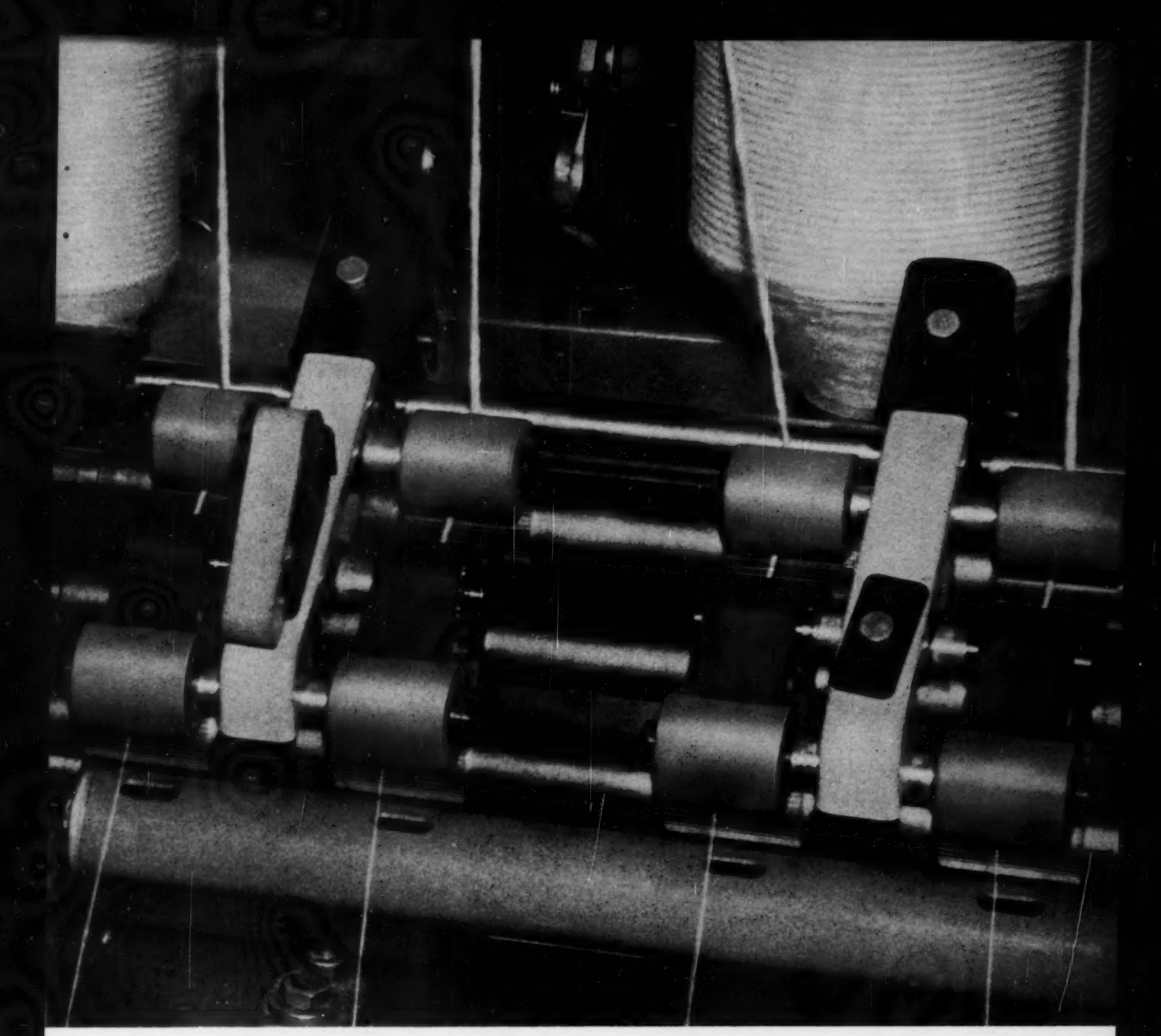

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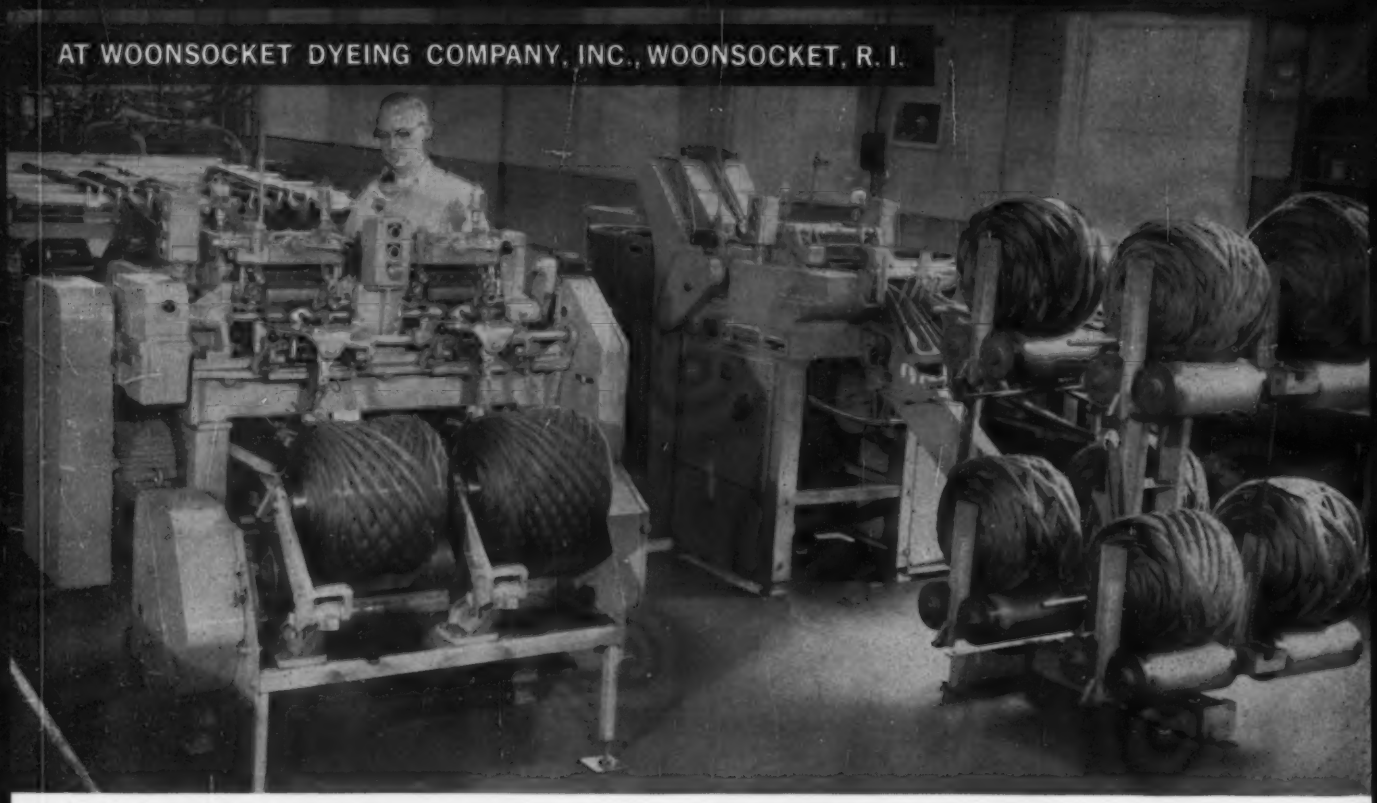

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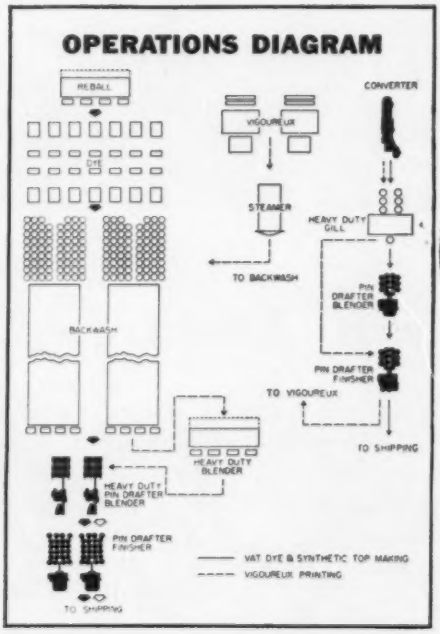

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HOW OTHERS MANAGE

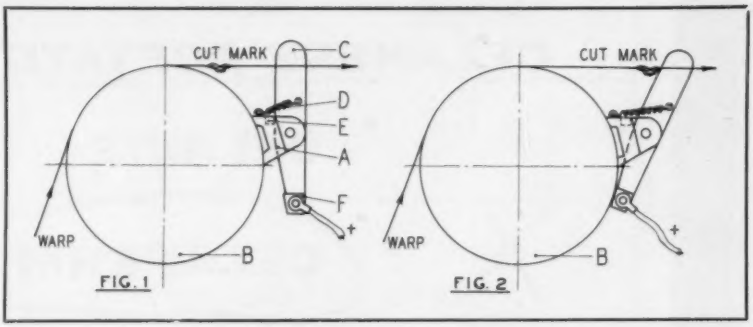
Device automatically stops loom when cut mark comes up

THE EDITORS:

Many weaving mills, especially woolen and worsted plants, require uniform piece lengths throughout the warp length. Many still use a cut mark inserted in the first section, but it must be seen by the weaver as it appears between the beam and the drop wires, or it is likely to get lost.

This is meant to stop the loom automatically when the piece is completed.

Stand A (Fig. 1) is attached to the backrest B. The lever C has to be insulated from the loom, which is achieved by making it out of fibre or ply wood. By means of spring D and stop E the lever C is kept in position. At the lower end of lever C a small steel plate F, connected with the positive wire of the warp stop motion, is attached.



To make this device successful, the cut mark has to be attached to the first warp section, preferrably in the form of a lease which will not slide when reaching the lever C, but rather will move the lever into position shown in Fig. 2. The loom will be stopped once the steel plate F makes contact with the back rest.

It is convenient to insert as a cut mark a string of ends used later in mending. When the loom

Continued on page 102

Enter your kinks in this new contest period... Winner gets $100

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance, and the $100 award will be made to the winner as soon as all entries are judged.

The contest rules are simple:

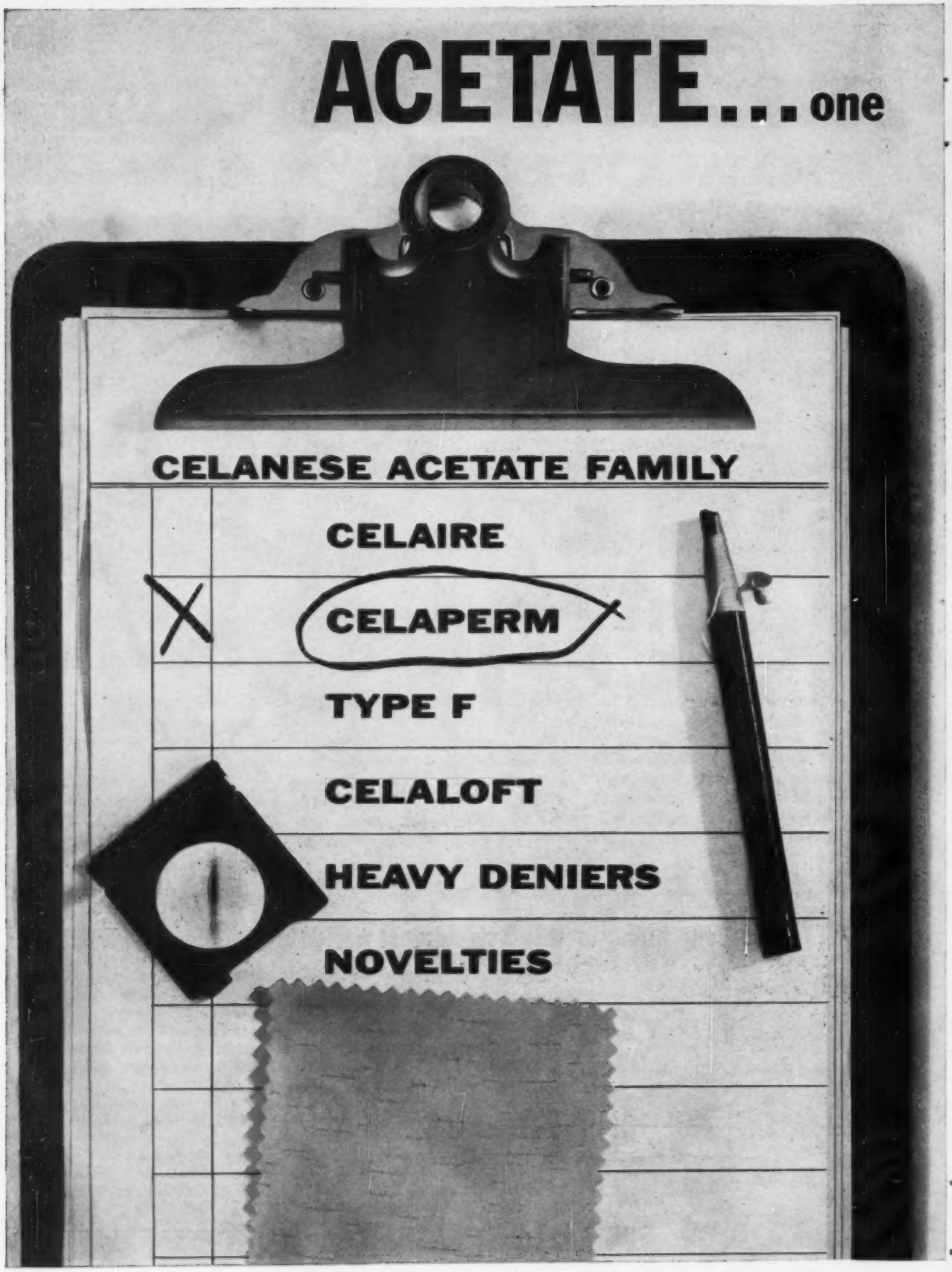
► All contributions must be postmarked not later than midnight, April 15, 1961.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

► Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 806 Peachtree St., N. E., Atlanta 8, Georgia.



For further information use Handy Return Card, Page 121

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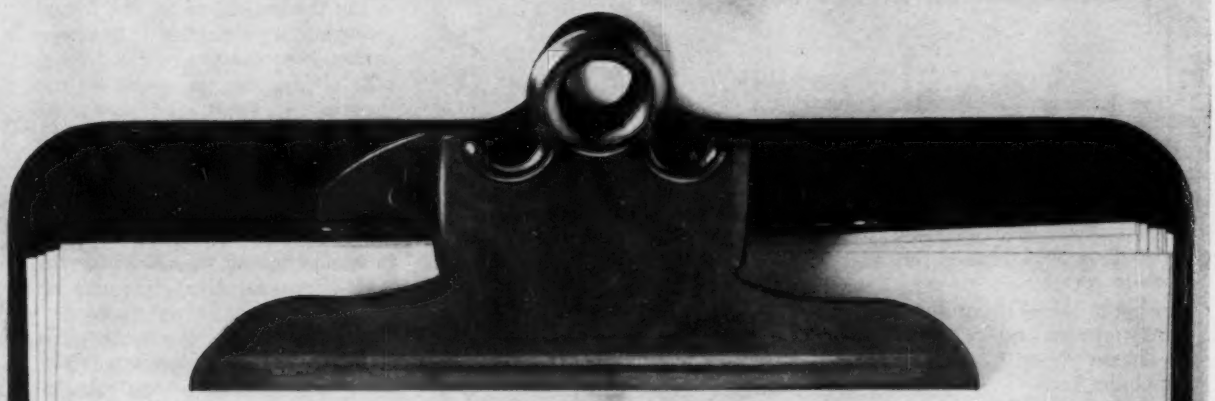

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(from page 99)
is stopped, the weaver takes out the cut mark, cuts the piece, and uses the cut mark string to attach the piece ticket to the piece.

CONTRIBUTOR No. 1267

How are woolen blends calculated?

THE EDITORS:

I am in search of a book or other source of information dealing with top blending. For example, we have the following blend:

Sliver A—210 grains/yd, composed of 30% blue rayon and 70 white cotton;

Sliver B—172 grains/yd, 30% green rayon and 70% white wool;

Sliver C—416 grains/yd, 100% mohair; and

Sliver D—245 grains/yd composed of 100% wool. From these we wish to make a blend of one per cent blue (blue only, without the wool), one-half of one per cent green (green only, without the wool), 29½ per cent mohair, and 69 per cent wool.

What necessary regilling is needed for the least number of operations so that when it is fed through the first dual head intersecting draw frame the blend is correct?

CONTRIBUTOR No. 1274

(Help!—The Editors)

Unwinding does not affect final twist

THE EDITORS:

The article, "A Study of Twist Changes Resulting from Unwind Method," by CONTRIBUTOR No. 1255 in "How Others Manage" in your October issue, was extremely interesting.

At one point CONTRIBUTOR No. 1255 says: "It has always been felt . . . that pulling over the end of a unit would cause some change in the twist—*plus or minus*" (the italics are mine). Actually, and his tests confirm it, twist is *always added* to yarn when it is drawn over the top of the bobbin, whether S or Z twist is in the yarn, although the amount added is only a fraction of a turn, depending upon the diameter of the yarn on the bobbin from which it is drawn.

The following calculations for determining the twist disturbances due to traveler lag and later in drawing the yarn over the top of the bobbin may be of interest in this connection. For simplification, it is assumed that warp wind is used. Let:

T_1 = theoretical turns per inch (number of revolutions of spindle while one inch of yarn is delivered by front roll)
C = circumference of full bobbin
c = circumference of bare bobbin

While one inch of yarn is delivered by the front roll, the bobbin will make T_1 turns, but the amount of actual twist put into the yarn will be less than T_1 due to the drag of the traveler in winding the yarn on the bobbin. This twist loss is calculated as follows:

$\frac{1}{C}$ = turns of the spindle or bobbin required to wind the one inch of yarn on full bobbin

$\frac{1}{c}$ = turns required to wind one inch of yarn on bare bobbin

Then:

$T_1 - \frac{1}{C}$ = actual twist in yarn on full bobbin

$T_1 - \frac{1}{c}$ = actual twist in yarn on bare bobbin

If this yarn is drawn over the top of the bobbin, one turn of twist will always be *added* for each coil of yarn that comes from the bobbin. Therefore 1/C equals turns of twist added per inch in drawing over top of full bobbin, and 1/c equals turns of twist added per inch in drawing over top of bare bobbin. Consequently:

$$T_1 - \frac{1}{C} + \frac{1}{C} = T_1$$

which is the actual twist in the yarn after drawing it over the top of a full bobbin, and:

$$T_1 - \frac{1}{c} + \frac{1}{c} = T_1$$

which is the actual twist in the yarn from a bare bobbin.

It follows then that, since T_1 is the theoretical twist, the actual twist in the yarn after it has been drawn over the top of the bobbin will always be the same as the theoretical twist, because the amount of twist *added* to the yarn will be the same as the amount *lost* by the traveler in winding the yarn on the bobbin.

It is of course obvious that the foregoing makes no allowance for tape slippage, contraction due to twist, etc.

The tabulated results of the tests reported by CONTRIBUTOR No. 1255 tend to confirm the calculations given here. This contributor is confident that, if the tests had been more exhaustive, confirmation would have been definite that the actual twist in any ring-twisted yarn, after being drawn over the top of any bobbin, regardless of diameter or type of wind used (i.e., filling, warp, or combination wind), will be same as the theoretical twist, as defined here, except for some slight variation due to tape slippage or other mechanical causes.

For those interested enough to look it up, or those old enough to remember, this whole subject was covered very fully in the September 1930 issue of "Cotton," now TEXTILE INDUSTRIES.

CONTRIBUTOR No. 1274

Does dyeing affect yarn strengths?

THE EDITORS:

The operating executives in a cotton mill were so well pleased with the information that was obtained from the test made in ascertaining changes in tensile strength due to bleaching and spooling, that it was suggested that the testing laboratory director check the strength effects of dyeing (black) and spooling.

Accordingly, the laboratory director:

1. Selected an average grey

TABLE 1

Change in Cotton Thread Tensile Strength Due to Dyeing and Spooling

Thread count	Strength (lb)		Strength loss due to dyeing (%)	Black spool strength (lb)	Loss due to spooling (%)	Strength loss (%) of black spools over grey stock
	Grey stock	Black stock				
8	6.18	5.97	3.40	5.90	1.17	4.53
16	4.86	4.75	2.26	4.60	3.16	5.35
24	4.01	3.88	3.24	3.74	3.61	6.73
40	2.89	2.86	1.04	2.73	4.55	5.53
50	2.18	2.17	—	2.10	3.22	3.66

skein for each number to be tested; checked for appearance, twist, and size.

2. Conditioned the grey skeins for a 24-hour period.

3. Made tensile strength tests on each test skein.

4. Attached a special test identification tally to each skein, in addition to the regular tally.

5. Put skeins in their respective lots to assure that dyeing would be done in the usual manner.

6. Conditioned black skeins 24 hours in the testing laboratory.

7. Made strength tests on the black skeins.

8. Spooled the black skeins on average spindles as ordinarily done.

9. Conditioned spools for 24 hours in the testing laboratory.

10. Made strength tests on spools.

11. Made up a tabulation of figures.

12. Evaluated results in a report.

In looking over the tabulation, Table 1, one will note that the loss in strength due to dyeing is much smaller in the finer numbers. In fact, in 50s the loss is almost negligible.

On the other hand, the loss in spooling the black skeins shows some uniformity for all numbers of thread with the exception of 8s where the loss is comparatively small, indeed.

In comparing the spooled strength against that of the grey material, it will be seen that there is a loss in every number, that of 50s being the smallest.

From the comparison of grey stock and black spool strengths it was recommended that a routine testing should be carried out in the future so that any further deterioration of strength could be compensated by making changes in the grey to take care of the undesirable drop in black strength. Currently, however, the black spool strengths met the standards that had been set for them in the past.

CONTRIBUTOR No. 1192

Handbook for specialists unfamiliar with cotton mill

THE EDITORS:

In the "Who Can Make It?" item on p. 141 of your November, 1960, issue, someone "asks" for a cotton mill handbook for specialists (such as cost analysts and engineers) who are not thoroughly educated in textile processing.

I refer the inquirer to the *American Cotton Handbook* for some of his answers. As one of the authors, I am quite aware that 1000 pages allot too little to space every subject. However, there have been many mill men who complimented the book's over-all coverage and were grateful for the help they found in it outside their own department. To me, this is a survey book with enough technical detail to give an interested reader a foundation of the processes involved, their purposes, and in general how they should operate. Of course, the handbook contains nothing on costs or labor management.

GILBERT R. MERRILL

Printer suggests reverse-brush to prevent color "leak-in"

THE EDITORS:

Many problems confront the roller printer. One of the most important and complex ones is the linting of the print roller to avoid what is known as "color leak-in." We are speaking of the color that gets into the engraving or color box of a succeeding print roller.

In such cases, the printer must resort to the use of the lint doctor to remove this undesirable color and thus prevent it from mixing with the desired color. The purpose is to obtain a clean print color, free of contamination.

It is a well-known fact that regardless of the skill of the printer in making up the lint doctor so that it will clean the desired roller, the complexity of the design, or "pattern" as it is known in textile printing, makes it quite impossible to achieve proper results in all cases.

This is due, in some cases, to the intricacies of the design, whereby some colors are placed in such proximity to each other that the lint doctor does not have the proper allowance to carry the color away. It therefore drags the undesirable color into the engrav-

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For further information use Handy Return Card, Page 121

ings to cause what is known as "color leak-in," which in turn causes inferior work.

The well-known procedure to reverse the rollers does not work in all cases, and there is no reason to do so in other cases. Occasionally, the printer is confronted with this dilemma. To overcome this problem there is the time-tested technique of using the drag-brush or the reverse-brush. Considering the two, the reverse-brush is better. This assures the complete removal and mixing of the color, so that the engraving will be clean and the printer will be able to execute a clean color print.

Now to come to the core of the problem or heading of this subject, The Reverse-Brush. There is to my knowledge a variety of techniques to achieve this on a printing machine, mostly based on a triple gear combination; that is, anchoring an intermediate gear on the color box, or on the side of the printing machine, or even by a free floating gear between the mandrel gear and the color box furnishing gear. This will provide a reverse-brush action by the triple gear combination.

Although this combination gear gives the desired mechanical action, there are many faults which, to my judgement, should be improved upon by our textile machine manufacturers.

This is one of the most crude mechanical get-ups in our modern times. The faults in this instance are gross and important enough to stimulate management awareness and lead engineers to a more modern improvement.

Vibration in this instance is terrific and underpinning of the color box is sometimes resorted to, in order to balance the alignment of the triple gear combination.

Print speed is considerably reduced due to vibration and the fast speed by which the color furnisher brush revolves. This, of course, is due to the gear ratio being limited, and which in turn is caused by the intermediate or floating gear.

That the color in the color box will "splash" from the rear side of the color box at this accelerated speed is common knowledge. This makes it mandatory to go very slow, since the printer must conform to the physical aspects of the mechanical action.

Printing by means of engraved copper rollers is old and although its basic principle has remained the same since its inception, a look at the auxiliary equipment from time to time will show the need for improvement, which in turn will help improve our textile printing.

If some engineer or textile machine manufacturer would look into this aspect it would be very helpful. If some form of mechanical device could be developed that would reduce vibration, reverse the brush, and at the same time control the speed of the brush to give the printer more flexibility in his work, it would be greatly appreciated by the entire trade.

CONTRIBUTOR No. 1277

Twists samples on salvaged frame

THE EDITORS:

At Hadley Peoples Mfg. Co., we replaced six worn Fales & Jenks twisters with new machinery. The worn-out twisters had 144 spindles with 3½-inch rings, were 4-inch gauge, had 1½-inch front roll diameter, and a 387 twist constant. These frames used a 9-inch bobbin which held 17 ounces of yarn and were used to make 2 to 10-ply of 4s to 20s yarn with either Z or S twist.

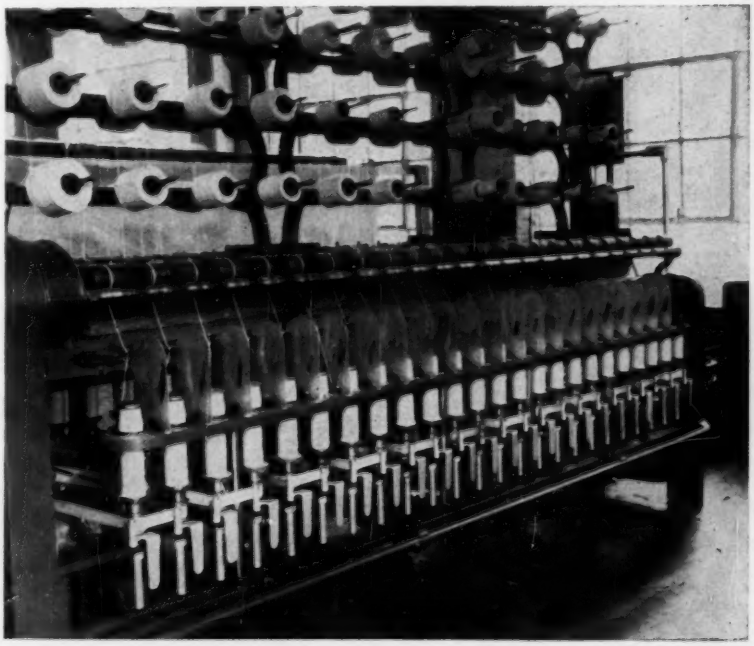
We had taken these twisters out and stored them in our warehouse. Like most obsolete machinery, they were ready for the junkman.

We had badly needed a sample twister for the sole purpose of making samples for some time. On occasion, we have had as many as four of our forty-eight twisters out of production for eight hours making samples.

After it seemed as though the old twisters were not going to be sold, we took the head end and foot end with twelve spindles from each end on each side and cut them off. Then we joined these two sections together precisely so the lifting rods and lifting rod arms would align properly and work correctly.

This sample twister has worked so well for us that now we are installing a similar one in our spooling department for running out starters.

HAROLD MILHOLEN



let's talk about...

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. . . a quality lubricating and conditioning agent for cotton, wool, and synthetic spun yarns. Adaptable to rayon novelty yarns, it improves softness and running qualities. Forms highly stable emulsions with water.

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. . . especially prepared for tufting yarn producers. Restores rayon, cotton, or blended yarns to proper condition and imparts lubrication for better-running yarns. Easy to apply evenly, it's completely saponifiable for protection in scouring and dyeing.

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. . . first choice of knitting yarn manufacturers. Gives smooth running and even stitches, making for stronger yarn with fewer breaks. Causes no odor or color changes; easy to prepare; for natural or synthetic yarns.

LAURELWAX EMULSION WG

. . . truly cold water dispersible and excellent for winding trough work. For treating cotton, wool, Orlon and other knitting and sewing yarns, it is used at no sacrifice in active content where hot water is a problem.

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But—best of all—Oakite 202 in mild solutions out-performs strong solutions of other cleaners. This makes it a most economical all-purpose material.

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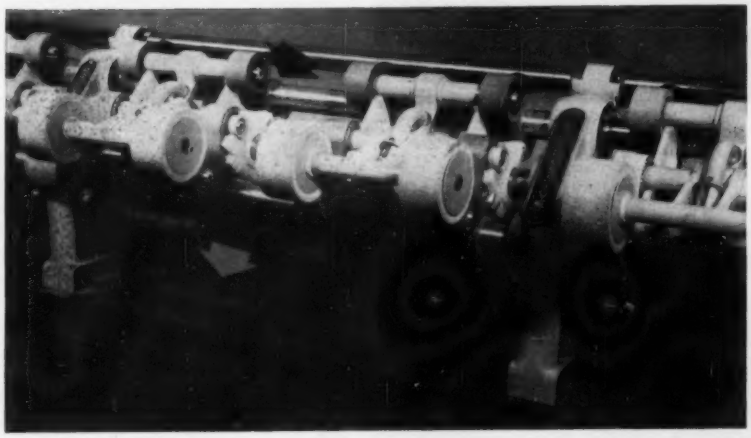
NEW PRODUCT PARADE

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.



quality and working conditions.

The device picks up lint off the floor by suction and deposits it in two large screened boxes which travel above head height without interruption or interference.

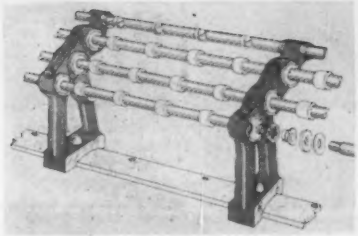
When the cleaner's collection box becomes full, it is easily unloaded by stopping the unit over a portable box and opening a hinged door at bottom to allow the collected lint to fall into the box for convenient disposal.

The cleaner may at any time be converted from the manual to automatic disposal type.

Parks-Cramer Co., Fitchburg, Mass.

Do you want more data? Write supplier or use card on page 121; list A-102

Cot-equipped sectional bottom rolls boost quality



The Progressive Ball-Bearing Sectional Bottom Roll Assembly, which is adaptable to all existing spinning frames, provides the following advantages:

1. Run-out is less than .001".
2. Bottom aprons may be replaced more quickly and easily.
3. Cots may be used on bottom rolls to provide improved drafting and yarn quality.
4. Higher drafts with fewer ends down may be obtained.
5. Front, middle, and back line rolls are identical and interchangeable from stand to stand.
6. Roll stands, which are manufactured to provide 30°, 45°, and 60° drafting, are keyed to the roll beam in such a way that roll alignment is unnecessary.
7. Bearings are grease-lubricated.

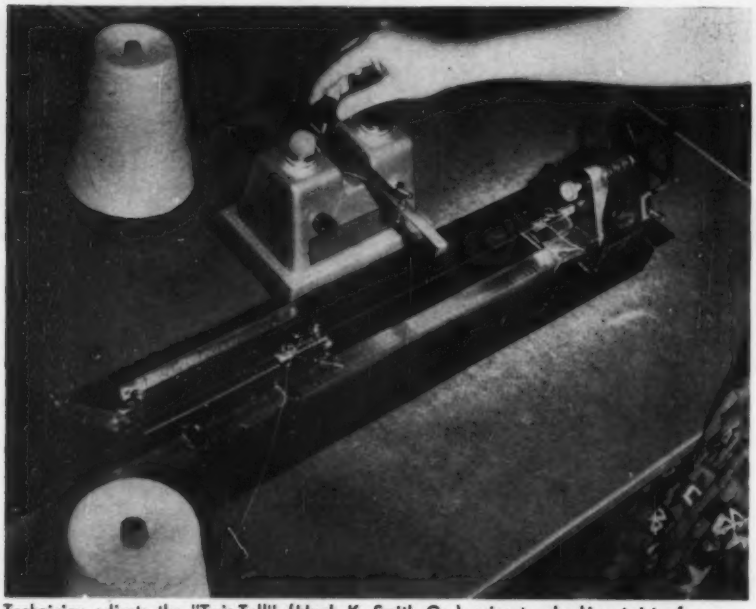
Progressive Engineering Co., 241 W. Water St., Rockland, Mass.

Do you want more data? Write supplier or use card on page 121; list A-101

Manually dumped floor sweeper offers constant efficiency

A new traveling vacuum floor sweeper for spinning frames and other textile processing machines collects over three bushels of lint before manual doffing is necessary and is designed so that efficiency of lint pickup is maintained indefinitely without need for manual attention. Called the "Long StorageTravelVac," the sweeper saves labor and improves

TravelVac unit (top) in position for lint to be dumped from its collection boxes into the portable tank-like container at right.



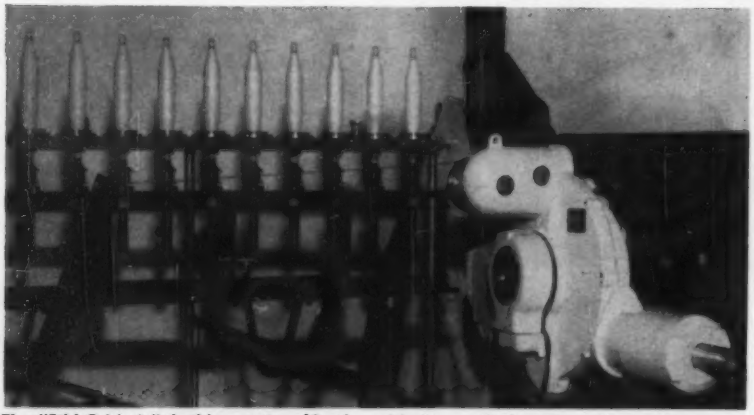
Technician adjusts the "Twis-Tell" (Hugh K. Smith Co.) prior to checking twist of a yarn.

Makes twist testing faster, more accurate

An electronic device for use in conjunction with conventional twist testers increases the accuracy of twist measurements, decreases the time required for twist determinations, and reduces operator fatigue. Developed by the Research Division of West Point Mfg. Co. and marketed under the tradename of "Twis-Tell," the instrument is accurate, rugged, dependable, and easy to use. Use of transistors in a printed circuit assure long life and trouble-free operation.

Hugh K. Smith Co., P. O. Box 472, West Point, Ga.

Do you want more data? Write supplier or use card on page 121; list A-103



The "Bild-O-Matic" builder motion (Southern Machinery Co.) is the white mechanism at the right in this photo of the demonstration unit displayed at the Greenville Show.

Spinning frame builder motion makes tip bunch on filling

The "Bild-O-Matic" puts the tip bunch on filling bobbins at the spinning frame and thus permits direct-spun filling to be used in automatic filling magazines. It controls the complete cycle of bobbin building—builds the tip bunch, feeler bunch, lowers the ring rail, and stops the frame. It can be installed easily on most existing frames.

Automatically operated by its own electric motor, the cam arrangement simplifies changing counts, builds, etc.

Southern Machinery Co., Box 3217, Station A, Greenville, S. C.

Do you want more data? Write supplier or use card on page 121; list A-104

Mill installation of the American MonoRail automatic transfer and discharge conveyor.

Fully automatic handling of laps, yarn, sliver, cloth

Now available for textile mills is a conveyor that transfers the material being transported (picker laps, sliver cans, yarn boxes, cloth, etc.) from one to the other under power. Known as the Automatic Transfer and Discharge Conveyor, it consists of a continuously operating feeder that automatically transports materials to one or more indexing storage conveyors.

Among benefits to be derived from the equipment are elimination of manual labor for transfer of materials; elimination of need for floor trucks, making the floor space needed for them available for other uses.

The American MonoRail Co., 1111 E. 200th St., Cleveland 17, Ohio.

Do you want more data? Write supplier or use card on page 121; list A-105

Roving spindle holds 6-month supply of oil

A hollow spindle recently introduced for roving frames holds enough oil to lubricate its step and bolster top bushing for at least six months, and it supplies the right amount of oil to these points as it is needed. Designated the Ideal Self-Lubricating Roving Spindle, it reduces wear on parts, assures free running at all times, and saves labor, power, and oil.

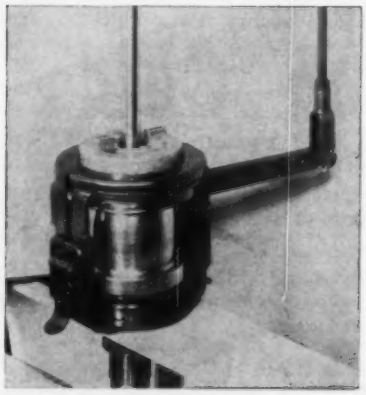
The spindle point and step are lubricated through a small opening in the point which meters out a tiny drop of oil when its temperature reaches 100 F. Top bolster is oiled by slow seepage through a porous bronze plug when carriage reaches the end of the down stroke.

Ideal Machine Shops, Inc., Bessemer City, N. C.

Do you want more data? Write supplier or use card on page 121; list A-106

Instantly stops twister spindle, but lets whorl keep turning

New Meadows twisters with rings from 4" to 8½" in diameter may be equipped with a single-end, single-spindle, completely automatic stop motion which instantly stops the bobbin, spindle blade, and yarn feed when single yarn in the creel breaks or runs out. This stop motion leaves the whorl on the stopped spindle op-



erating freely on ball bearings; consequently, there is no wear on the tape from slippage and other spindles driven by the same tape do not slow down.

Maintenance of this trap spindle and tripping mechanism is kept to a minimum since it is completely mechanical.

Meadows Mfg. Co., P. O. Box 10997, Atlanta 10, Ga.

Do you want more data? Write supplier or use card on page 121; list A-107

Antifriction changeover for Roth or Shaw spinning

Drafts up to 60 may be obtained with the new NYAF completely antifriction bearing equipped changeover for Shaw and Roth drafting systems on spinning frames.

Effective weight distribution is a feature of the system which controls weight forces exerted on a 15:1 ratio dead weight lever. Weight on each roll remains constant.

A center-suspended assembly, this changeover does not require lubrication and eliminates any changing of bottom rolls and stands.

F. A. Young Machine Co., Inc., Gastonia, N. C.

Do you want more data? Write supplier or use card on page 121; list A-108

Stretches and twists filament yarns in one operation

The Barmag Draw Twister, Model SZ 1, is a heavy duty ring twister for drawing continuous filament synthetic yarns ranging in size from 500 to 2000 denier.

A dual set of feed rolls, with one set running at a considerably higher rate of speed than the other, gives stretch or draw to the yarn prior to twist insertion and takeup on the bobbin.

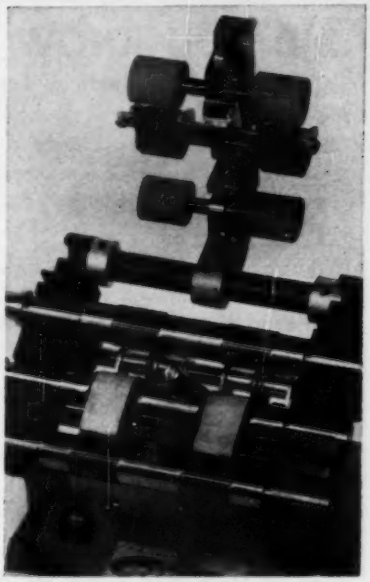
Utex, Inc., Scranton 8, Pa.

Do you want more data? Write supplier or use card on page 121; list A-109

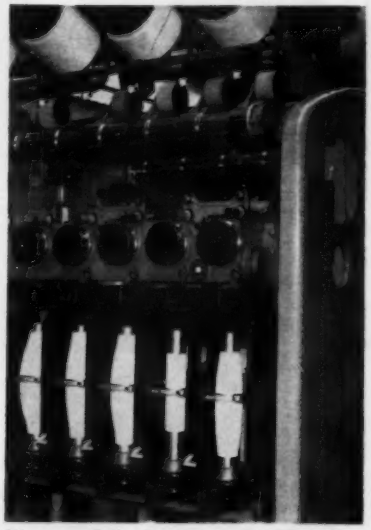
Vacuum cleaner cuts mill and machine cleaning costs

A distinguishing feature of a European-made vacuum cleaner which was recently introduced in the United States is the fact that it does not have a dust bag; hence, suction power of the machine remains constant for efficient cleaning of looms, spinning frames, cards, and other textile processing machines as well as overhead beams, light fixtures, air conditioning ducts, etc.

One advantage of suction cleaning is that it can be done during regular working hours while machines are running, eliminating the need for week-end cleaning while the mill is down. Contamination of stock in carding and spinning rooms caused by fiber, dust, and dirt being blown from one machine to another is avoided. Seconds in weaving caused by lint, dirt, oil, and grease being blown from one loom to another are reduced. Operatives benefit because



NYAF antifriction changeover recently introduced by F. A. Young Machine Co.



Close-up of the Barmag Model SZ I draw twister which is marketed in U. S. by Utex, Inc.

Operator uses the Nilfisk suction cleaner to clean overhead pipes, etc., in a weave room.

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Virginia, North & South Carolina, Georgia & Tennessee

JENKINS Metal Shops trucks roll into these five states every week on scheduled runs to service their good clients with prompt and personal service.

Wouldn't you like to be included on the scheduled run through your state? You can . . . just drop us a line. We will pick-up and deliver and assist you in many ways.

We have representatives in New England and other Textile centers . . . also in Canada.

Our trained personnel will gladly explain our services and facilities. JENKINS Metal Products are numerous and are quality proven by years of service.

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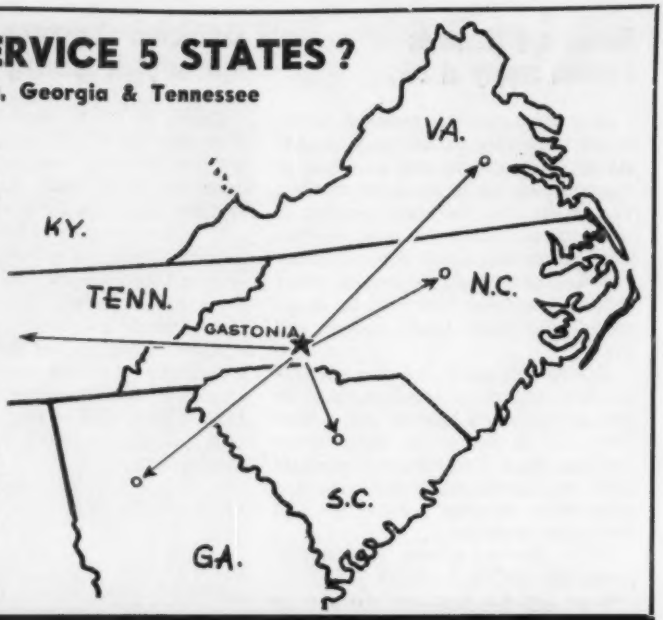

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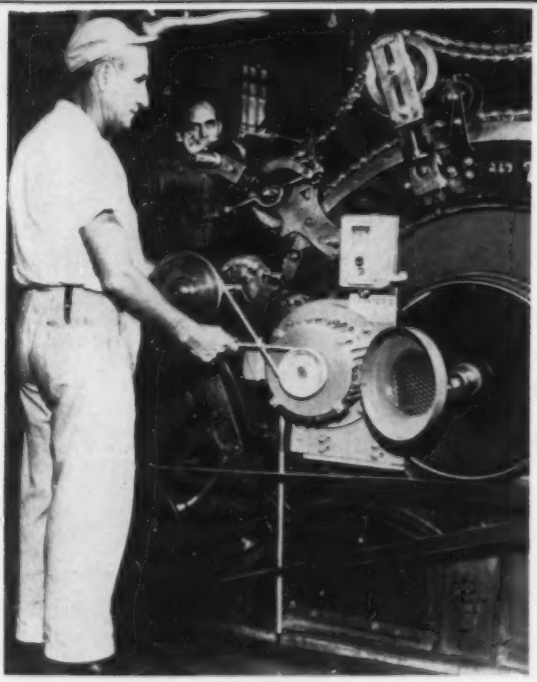
P. O. BOX 1160

GASTONIA, NORTH CAROLINA



Best Means For Driving Cards

The Gunter Card Drive is by far the simplest and most efficient method of driving a card.

All the advantages of individual drives are present, without the complication of jack shafts, clutches and gear reducers.

There is no oil above the cards, no belt hazard, no maintenance of flat belts and line shafts. The drive is easily reversed for grinding. It's compact and easily stripped.

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303 EAST TRINITY AVE. **TEL. 4-0311** **DURHAM, NORTH CAROLINA**

For further information use Handy Return Card, Page 121

there are fewer lung irritants in the air they breathe.

Two models of the Nilfisk suction cleaners are particularly adaptable to textile mill use—the Model G73 which has three motors and the Model G72 with two motors. Both suck the dirt, lint, and dust into a large capacity container which is very easy to empty.

Nilfisk of America, Inc., 706 Buncombe St., Greenville, S. C.

Do you want more data? Write supplier or use card on page 121; list A-110

Slubs wide variety of yarns effectively

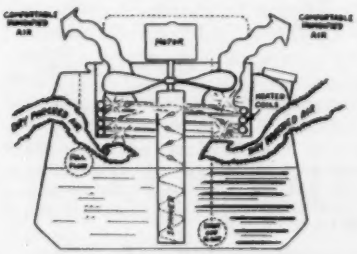
Designed for use on the Uniconer, Roto-Coner, and similar types of winding machines, the "Nip-It" slub catcher is insensitive to atmospheric changes, gives very close slubbing, and is easily cleaned. It is provided with sufficient color-coded weights to produce a tension range of 50 to 2000 grams.

The slub catcher has two sets of blades mounted on inclined planes, one set behind the other. The individual blade edges in the primary set are parallel; those of the secondary set form an inverted V slot. A slub striking the adjustable primary set glides over them, if it is too large to pass, and is caught and cut by the V slot of the secondary blades. This secondary set has an eccentric for regulating the bottom of the V without affecting the nip point.

Leesona Corp., P. O. Box 1605, Providence 1, R. I.

Do you want more data? Write supplier or use card on page 121; list A-111

No condensation problems with this humidifier



The Rotherm humidifier for spot or area humidification utilizes the principle of "accelerated evaporation" to provide instant controlled humidity at room temperature. Hence, condensation of water and the resulting damage to stock and machines are avoided.

Drops of water are lifted from a reservoir up a hollow spinner tube and centrifugally forced against heated coils, causing instantaneous evaporation of the water. A fan draws dry air from the room into the unit. As this air passes the coils, it absorbs the evaporated moisture. Fan then recirculates the humidified air into the room where it is readily absorbed without condensation.

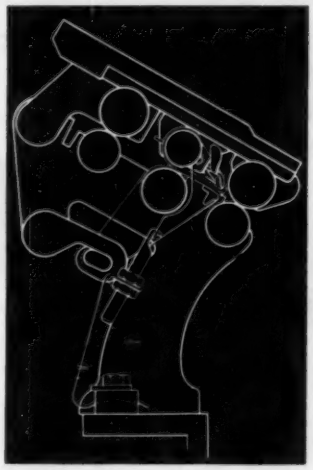
For spot humidification, a single portable humidifier with its own water reservoir is available; it shuts off automatically when water is exhausted. Where a number of the units are used for large area humidification, water is piped to humidifiers from mill supply lines.

All materials used in the unit are rust and corrosion resistant. Automatic, safe, and low-cost operation is another advantage of the humidifier.

Rotherm Engineering Co., Inc., 7280 W. Devon Ave., Chicago 31, Ill.

Do you want more data? Write supplier or use card on page 121; list A-112

Long-bottom-apron changeover



Recently introduced for converting single-apron type spinning frame drafting elements into double-apron units was the Whitin STA-R Drafting Changeover which incorporates these features: (1) spring-weighted center suspension top arm; (2) ball-bearing top rolls for all three lines; (3) top apron twin cradles retained by the top arm; (4) spacers available for easy conversion to any of six fiber control settings; (5) bottom nose bar with profile extension for efficient apron support; (6) light-weight, non-wearing spring tension device for bottom apron.

The top arm has a cover-lever which facilitates unweighting and weighting, affords lint protection to the top arm assembly, simplifies cleaning, and improves over-all appearance of the unit.

Relubrication of top rolls is required only after 20,000 hours of operation or a period of four years, regardless of working hours. With the exception of normal cleaning by the roll picker, no cleaning, washing, or dismantling is required. Bosses of all three lines of top rolls rotate independently, and the front and back rolls are interchangeable.

Whitin Machine Works, Whitinsville, Mass.

Do you want more data? Write supplier or use card on page 121; list A-113

Dyes, finishes, and chemicals

Use this latex backing without curing

Pliolite 176, a synthetic-rubber latex especially recommended as a backing for upholstery and carpet and as sizing for mattress tickings, can be compounded to meet many conditions. It has a non-staining, antioxidant system and, depending on end use, can be used without a cure. With outstanding heat and light aging properties, it imparts soft hand, has excellent stability, and forms tough, flexible, low-odor films with practically no tackiness.

Goodyear Tire and Rubber Co., Chemical Division, Akron, Ohio.

Do you want more data? Write supplier or use card on page 121; list A-114

Inhibits static on wool, synthetics

Sonostat 60, a 100 per cent active, non-ionic liquid that is readily emulsifiable, imparts a high degree of static inhibition at low cost to all types of wool and synthetic textiles. Amber in color, the product is stable toward oxidation, discoloration, or odor development, and it will not corrode equipment. It scours readily and will assist in removal of spinning lubricants that may be present on stock. Usually applied to raw stock from emulsion by spraying, this product also may serve as a non-permanent antistatic agent in fabric finishing.

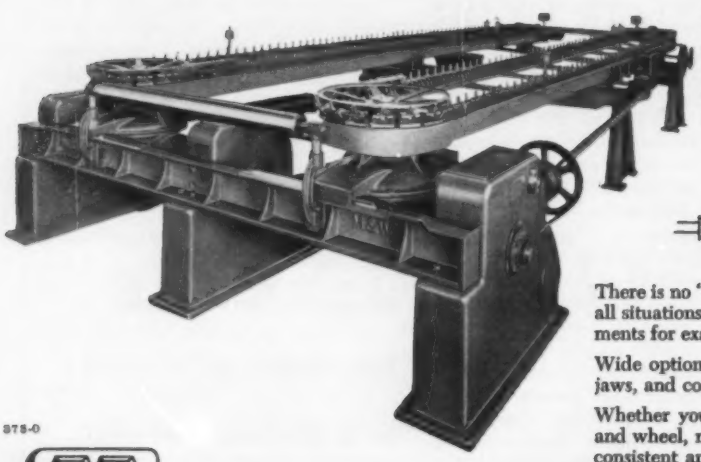
Sonneborn Chemical & Refining Corp., Textile Chemicals Div., 300 Park Ave. South, New York 10, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-115

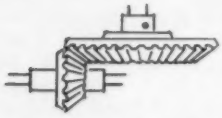
Softener for wash-wear fabrics

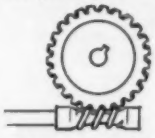
Tex-Wet 1048 is compatible with resins for treatment of wash-and-wear fabrics to impart softness to them. It contains polyethylene and is

Vital Tenter Frame Options
Feature Marshall & Williams Engineering



These vital options include either bevel-gear or worm and wheel drive in units of 5 to 100 horsepower; frames from small tenterettes to large heavy duty tenters; rail widths in 7″, 14″, or 21″ — a range which makes it possible for Marshall & Williams to engineer a tenter frame built for your job demands.





There is no "standard" Marshall & Williams model peddled to fit all situations. Each tenter frame must meet your special requirements for exacting performance and operating economies.

Wide options are also afforded in the extensive range of clips, jaws, and controllers to handle any type of fabric.

Whether your choice is a bevel-gear frame or one with worm and wheel, narrow or wide rails, etc. etc., you're assured of one consistent and exacting standard of excellence where trial-and-error has been eliminated by the longest and widest range of successful acquaintance with tentering problems.

378-0

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PROVIDENCE, R. I. — GREENVILLE, S. C.

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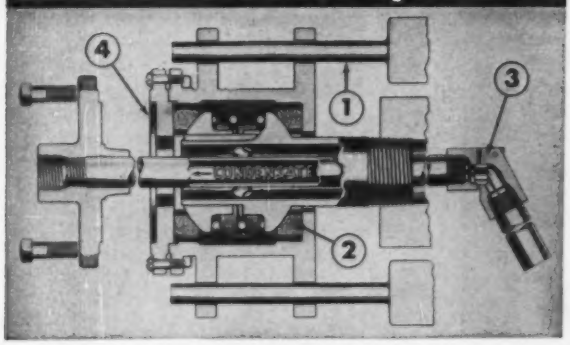
For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

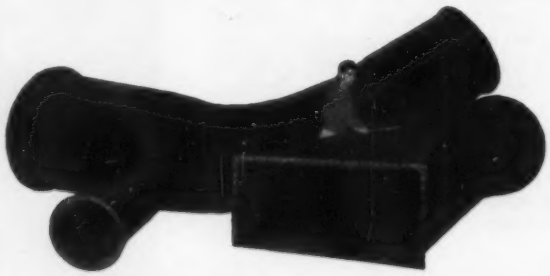
1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, compressive shrinkage ranges, 5' and 7' cotton slashers, etc.

Johnson ROTARY PRESSURE Joints
First in the Textile Industry

THE JOHNSON CORPORATION
815 Wood St., Three Rivers, Mich.



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From Flange to Flange — Inside and Out!

Ductwork by du Verre

Over a wide range of corrosive and erosive conditions, du Verre Resin Bonded Fiberglass has proved its superiority over coatings, linings and other traditional "resistant" materials.

Completely homogenous, du Verre fabricated ducts, fittings, hoods and tanks provide uniform protection from flange to flange, inside and out. One-quarter the weight of steel, du Verre fabrications also save you money on freight, handling and erection.

Whatever your process needs, equipment can be du Verre fabricated to your specifications. Write today. Ask for Bulletin No. 101 and see how du Verre can eliminate the high cost of corrosion and product contamination.

du Verre inc.

First in quality for complete corrosion control with reinforced plastics

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For further information use Handy Return Card, Page 121

a non-ionic emulsion system with no yellowing characteristics showing on fabrics after use. Stable both in resin and catalyst systems, the product contains no extenders, is made with controlled particle size, and gives better hand to resin-treated fabrics.

Texize Chemicals, Inc., P. O. Box 1820, Greenville, S. C.

Do you want more data? Write supplier or use card on page 121; list A-116

Surfactants good emulsifiers, detergents

A new series of surface active agents for fabric preparation and finishing applications offers exceptional solubility, chemical stability, antistatic and lubricating properties, and oil and water emulsification characteristics. Gafac GB-520, available as a 95% active sodium salt, is useful as an emulsifier-antistatic lubricant in processing of nylon 6 and other synthetic fibers. Gafac RE-610 and Gafac PE-510 are effective surfactants for use in kier boiling and continuous boil-off of cotton piece goods. It may also be used as a detergent for scouring and bleaching of synthetic fabrics.

Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-117

Soil retardant for carpets prevents static

A new soil retardant for carpeting is also an effective antistatic agent. Called Juvenon Soil Retardant No. 6, the product is particularly effective on wool and can also be applied to all other natural and synthetic fiber carpeting.

American Cyanamid Co., Textile Chemicals Dept., Bound Brook, N. J.

Do you want more data? Write supplier or use card on page 121; list A-118

Mildewstat resists leaching

Steri-tized 505, 510, 515, and 520 are low-cost, leach-resistant mercury compounds for use on all natural and synthetic fabrics, fabric finishes, and coatings where mildew prevention, fungus prevention, and inhibition of bacteria are desired. The products are compatible with most finishes, fabrics, and applications. Water soluble, they can be applied in the dye bath with any type of finish.

Griffin Chemical Corp., 640 Central Ave., Peekskill, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-119

Transparent backing for carpets

Low-cost transparent backsizing for velvet, Wilton, and contract style carpets may be applied by a system that provides a variety of different back properties, such as variations in hand, pile locking qualities, etc., by varying the ingredient proportions. Over 150 hours in the Fade-Ometer at 150 F failed to yellow the backing, which is supplied in a variety of viscosities and can be pigmented white with titanium dioxide without affecting the other characteristics of the unpigmented material.

Morningstar-Paisley, Inc., 630 West 51st St., New York 19, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-120

Wash-fast brown for cotton yarns

Polimize Brown PLM is for application of a direct brown to cotton by the Polimize package yarn dyeing process which leaves yarns soft. Because of its very good tinctorial strength and pile on properties and even exhaust and level dyeing characteristics, it is ideal for producing wash-fast cotton yarns. The dye has excellent fastness to washing and good light fastness.

Althouse Chemical Co., Reading, Pa.

Do you want more data? Write supplier or use card on page 121; list A-121

Two browns of premetalized class

Two new colors have been added to the Lanafast line of premetalized dyes which are applicable to wool, nylon, Creslan, Zefran, and Acrilan, as well as mixtures and combinations of these fibers. Designated as Brown 4 RFL and Brown DBL, they have superior light and wet fastness properties.

Althouse Chemical Co., Reading, Pa.

Do you want more data? Write supplier or use card on page 121; list A-122

Yellow and red acid dyes

A lemon-yellow acid dye, National Fast Wool Yellow GL, is especially recommended for wool and nylon, as well as on wool and silk and for cross-dyed wool-Dacron blends. An excellent base for bright yellow colors, the product is level-dyeing and offers good light and wet fastness plus outstanding working properties.

National Fast Brilliant Crimson RB, another acid dye, produces bright, clear colors from shades of pink to deep carmine on wool, silk, and nylon. Exceptional tinctorial strength, good light resistance, and above average wet fastness are properties of the dye.

Allied Chemical Corp., National Aniline Div., 40 Rector St., New York 6, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-123

Bordeaux and scarlet premetalized dyes

Two new neutral dyeing premetalized dyes for use on wool, nylon, and modified acrylics are available. National Lanamid Bordeaux BL has excellent fastness properties and can be applied in a neutral or weak acid bath without prolonged high temperature processing. National Lanamid Scarlet G has good application and fastness properties.

Allied Chemical Corp., National Aniline Div., 40 Rector St., New York 6, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-124

Gives deep rubine shades on nylon

Procinyl Rubine BS, a reactive disperse dye, makes possible the production of deep rubine shades on nylon and other fibers of the polyamide class. The excellent build-up of this new dye and its complete compatibility with other members of the range make it a suitable basis for browns, maroons, bordeaux and violet shades, in addition to the deep rubines obtained in self-shades. The dye shows very good fastness to wet treatments, moderately good fastness to light, and good fastness to heat setting. It is resistant to sublimation.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence 1, R. I.

Do you want more data? Write supplier or use card on page 121; list A-125

Improved blue in disperse class

Artisil Direct Blue BSR New, an improved blue dye in the disperse class for use on acetates and other synthetic fibers, provides fastness properties that are identical with Artisil Direct Blue BSR but offers improved dispersing and significantly less tarring.

Sandoz, Inc., 61-63 Van Dam St., New York 13, New York.

Do you want more data? Write supplier or use card on page 121; list A-126

Violet dye for textured filament yarns

Sandonyl Brilliant Violet B is particularly recommended for dyeing heat textured filament nylon sweaters in which barré effects must be avoided. The product is especially economical for producing lilac shades and it has the necessary fastness properties for the sweater trade.

Sandoz, Inc., 61-63 Van Dam St., New York 13, New York.

Do you want more data? Write supplier or use card on page 121; list A-127

Lightfast blue unaffected by resins

Sirius Supra Blue BRL provides relatively bright shade, good fastness to light, and good money value. Light

MOROPOL 700

Polyethylene Emulsion

Production Men Report Improvements in . . .

TEAR STRENGTH
ABRASION RESISTANCE
CREASE ANGLE

WASH-WEAR RATING
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CARD-FEED FOR WOOL CARDS, GARNETTS, SYNTHETIC and COTTON PICKERS

An accurate automatic **stock metering unit** that will handle **any staple fiber, natural** or **synthetic.**

This precise unit is available in 48 inch, 60, 72 & 84 inch widths. Dump to dump accuracy is less than 2½% total variation. This metering accuracy indicates the degree of opening accomplished between the comb and the apron pins. Rejected production is negligible. Simplicity of design makes this system extremely economical to operate and maintain.

Using this equipment, the result is a mat of stock, **uniform in weight and density** consistently to the feed rolls.

IT IMPROVES YOUR PRODUCT . . .
FACILITATES CONSTANT QUALITY AND
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REDUCES WASTE .

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For further information use Handy Return Card, Page 121

fastness is not affected by conventional resin finishes and shade turns only slightly greener in most cases. Product possesses very good solubility.

Verona Dyestuffs, Springfield Rd., Union, N. J.

Do you want more data? Write supplier or use card on page 121; list A-128

Fibers and yarns

Stronger, tougher rayon fiber

Commercial availability of Fiber 40, which is promoted to consumers as "Avril" rayon, has been announced. The new fiber is stronger and more stable than conventional rayons. Strength characteristic permits the spinning of finer yarns and widens potential area of blending applications with cotton and other synthetics. Stability of the fiber permits fabrics made from it to be preshrunk on conventional equipment. Fabrics of this fiber will readily accept resin finishes, and the Avril resin-treated fabrics will be from 50 to 100% stronger than like fabrics made from conventional rayon or cotton.

American Viscose Corp., 350 Fifth Ave., New York 1, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-129

Bulkier rayon fiber for many uses

A permanently crimped cross-linked rayon, known as Corval II, has greater bulk and cover and may be processed on all systems of spinning and dyed with all classes of cellulosic dyestuffs. It is envisioned that this fiber, which replaces the uncrimped Corval introduced in 1958, will find volume usage in blends and combinations with cotton, wool, triacetates, acrylics, and polyesters in a wide range of fabrics in men's and women's wear as well as in the domestics and linen field.

Courtaulds (Alabama) Inc., 600 Fifth Ave., New York, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-130

Use this olefin slub yarn outdoors

DLP-53, a monofilament slub yarn of the olefin type, may be used in outdoor furniture as well as in "sheltered" applications such as automotive upholstery and upholstery for indoor furniture. Webbing made from the new yarn has the appearance of fine fabrics in addition to the durability, resilience, and ease of maintenance of conventional outdoor fabrics. Also, the yarn makes possible production of a larger variety of patterns and colors.

Dawbarn Brothers, Inc., Waynesboro, Va.

Do you want more data? Write supplier or use card on page 121; list A-131

Navy and brown polyester fibers

Solution dyed Kodel polyester fiber is now available in navy and brown colors, as well as the black which was announced previously. Produced in 3 denier staple and tow forms, these new fibers substantially increase styling possibilities for designers in a wide range of fabrics.

Eastman Chemical Products, Inc., 260 Madison Ave., New York, N. Y.

Do you want more data? Write supplier or use card on page 121; list A-133

Equipment briefs

Yarn in this basket is always accessible

A "Junior" model of the "Palletainer" all-steel collapsible container for convenient transfer and storage of roving, yarn, bobbins, etc., features a hinged side gate that provides quick

and easy access to contents when units are stacked. Designated Model 3220-SGC, the container is 32" long, 20" wide, and 16" high; capacity is 500 lb. Gate opens or closes without interference while units are stacked, and opening does not affect stacking safety or hamper fold-down feature which saves storage space and shipping costs. Material stored in container is always visible for easier identification or inventory.

Union Steel Products Co., Albion, Mich.

Do you want more data? Write supplier or use card on page 121; list A-135

Pillow block for lightly loaded shafts

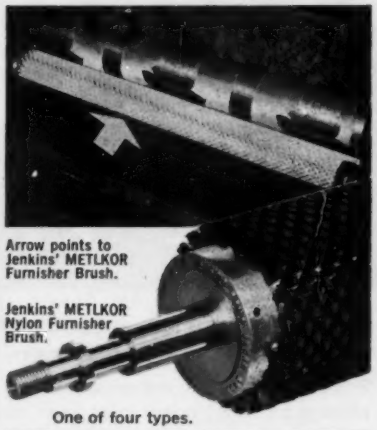
Suitable for most pillow block applications where moderate speeds, moderate radial loads, and relatively light thrust loads are encountered is an economical pillow block unit which consists of a high quality,

PERFECT PRINTING TEAM

METLKOR BRUSH JENKINS

RICE BARTON

Jenkins' METLKOR Furnisher Brushes, developed for Rice Barton printing machines, perform to the highest levels of reliability. They supply color efficiently and clean thoroughly the deepest or shallowest engravings.



One of four types.

Jake Nieman, Boss Printer of Manhattan Print Works Division of Waldrich Co., Passaic, N. J., one of the first to try these superior brushes, says, "We have been using Jenkins' METLKOR Furnisher Brushes in our Rice Barton printing machines for nearly 20 years. They measure up to the high standards we have set for the quality work we do."

In addition to a complete line of brushes for printers, Jenkins' also makes brushes for: Shears, Carbonizers, Singers, Tenter Frames and all other Textile Wet and Dry Finishing Processes.

Specify Jenkins' METLKOR
the original . . . the best *Metal Core* brush

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CYLINDER BRUSHES
and LIFEWOOD® WOOD BACKED BRUSHES

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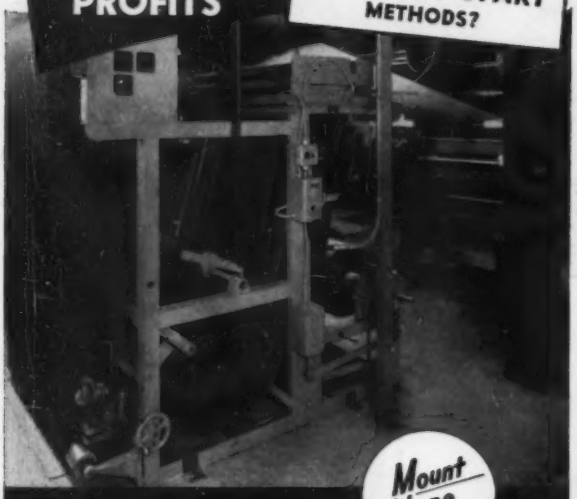
—WITH ANTIQUATED STOP-AND-START METHODS?



Mount Hope

Better change to—

CONTINUOUS ROLL FEEDS

FOR UNINTERRUPTED PRODUCTION and TENSION MAINTENANCE — while changing rolls! . . .

Some mills are still paying about $10.00 each time they change a roll. A typical print room can lose $125 a day, including time loss and spoilage. But — more and more production executives are learning about Mount Hope CONTINUOUS ROLL FEEDS — and their companies are increasing profits because they are eliminating shut-downs by using these efficient units ahead of PRINTING MACHINES — TENTERING FRAMES — CALENDERS — FINISHING RANGES — SINGERS — Cloth and Gray Room SHEARING, BRUSHING or BEAMING MACHINES — COATERS — LAMINATORS — or any place where a CONTINUOUS FLOW OF MATERIALS IS ADVANTAGEOUS. You also get the desired speed — correct storage amounts — smooth feeding into scray, and other cost-cutting features.

To get the profitable facts, write for folder on Mount Hope CONTINUOUS ROLL FEEDS.

MOUNT HOPE MACHINERY COMPANY

52 Fifth Street, Taunton, Mass.
Plants at Taunton, Mass. and Charlotte, N. C.

from thread to cloth

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SPRAY NOZZLES

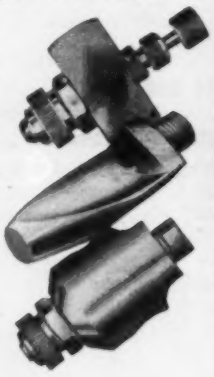
for better, faster production

Take advantage of Spraying Systems' complete choice of nozzle types and capacities, to select the EXACT nozzle to do the job best. Typical nozzles include:

PNEUMATIC ATOMIZING NOZZLES--for marking, coating and related uses. Designed for manual or automatic operation.

FLAT SPRAY NOZZLES—for washing and rinsing. Wide range of types for any required impact characteristic.

HUMIDIFYING NOZZLES—for efficient humidification and minimum maintenance. Complete units for low cost installation.



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...PUMP IT!

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Transport your liquids or semi-liquids to point of use with a Graco Fast-Flo Pump . . . *and show tremendous savings by cutting unnecessary plant traffic.*

Air powered, the Fast-Flo doesn't require expensive electrical wiring. Fits all standard drums.

Some plants handle up to 25 different materials this economical Graco way.

Investigate today. See how you can profit with Graco direct-from-drum transfer pumps in your plant.

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See Phone Book Yellow Pages "Spraying" for Graco Suppliers

self-aligning bearing in a sturdy, pressed steel housing. Known as the PBS Pillow Block, it permits the

use of standard Fafnir contact seal bearings with self-locking collars and accommodates shafts from ½" to 1-7/16" in diameter.

The Fafnir Bearing Co., 37 Booth St., New Britain, Conn.

Do you want more data? Write supplier or use card on page 121; list A-136

Helps in sewing foam-backed fabrics

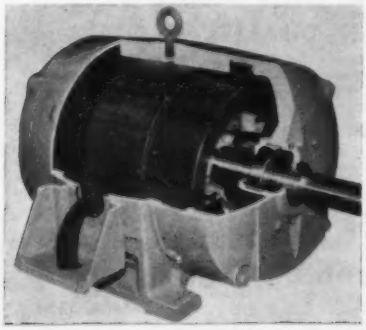
A silicone aerosol spray acts as a lubricant on feet and feeders of sewing machines and adds "slip" to cutting table surfaces. The product, Fabriglide, is especially useful with urethane foam backings, as it minimizes fabric bunching during sewing. Only a thin coating is needed, and the compound does not discolor the fabric.

Dow Corning Corp., Midland, Mich.

Do you want more data? Write supplier or use card on page 121; list A-137

Open motor for closed-motor applications

A new line of "Howellsealed" encapsulated motors offers the simplicity and high overload service features of standard open motors and, at the same time, provides the winding protection of enclosed motors. The line, which includes 2- or 3-phase squirrel-cage a-c motors ranging in size from 1 to 125 hp, provides open-motor performance in applications with exposure to excessive heat, moisture, acids, gases, salts, alkalis, caustics, fine abrasives, shock or vibration. A special epoxy compound surrounds each wire in slots and at coil ends to produce a



solid, void-free mass.

Howell Electric Motors Co., 16316 West Seven Mile Rd., Detroit 35, Mich.

Do you want more data? Write supplier or use card on page 121; list A-138

Easy-to-maintain ball valve

A new ball valve (Fig. 700) is of top-entry design for quick and easy in-line maintenance. A hook on the valve handle is used to "flip" the ball out for easy access to the seats. O-Ring seals (Teflon or buna-N) protect cover and stem from leakage. Available in sizes from ¼" through 2".

The Lunkenheimer Co., Beeckman St. and Waverly Ave., Cincinnati 14, Ohio.

Do you want more data? Write supplier or use card on page 121; list A-139

Easy way to keep dry cans clean

"Rulon" Spray — a reinforced fluorocarbon slip and antistick agent in 6-oz aerosol spray cans—provides

a low-friction, dry film which is chemically inert, insoluble, and thermally stable to over 500 F. The product offers a fast, simple way to provide a slick surface on wood, metal, leather, plastics, etc. It may be used as a lubricant for belts, gaskets, packings, gears, bearings, cord, cable, machine parts, conveyors, etc., and as an antistick agent for blenders, tanks, chute, conveyors, dry cans, slasher cylinders, etc.

Dixon Corp., Bristol, R. I.

Do you want more data? Write supplier or use card on page 121; list A-140

Floor finish is more abrasion-resistant

"Superial" Mill Floor Finish offers up to five times more resistance to scratching and does not darken with age. Savings on materials and labor for floor maintenance are realized with this epoxy copolymer because the reapplication interval may be

THE RIGHT ANSWERS IN 3 SECONDS!

MOISTURE REGISTER'S MODEL 5 checks moisture accurately in almost every known textile. Any untrained operator can use it effectively – in any stage of production – on cones, beams, skeins; loose or compressed yarns and fibers; Wool, Cotton, Nylon, Rayon, Dacron, Orlon, etc.

It can be calibrated on the spot by plugging the test electrode into the self-checking standard . . . then trimming to zero if necessary. It's always right on the money.

Model 5 features:

- Trims to Zero on the spot.
- Portable, rugged, simple to use.
- Gives right answers, anywhere.
- Factory-set to your needs.
- All common textiles.
- 2-week free trial.

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Please send data on new Model 5's.

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in moisture range from ____% to ____%

Firm _____

By _____ Title _____

Address _____

City _____ State _____

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★ WARP SPINDLES ★ FILLING SPINDLES ★ TWISTER SPINDLES

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COMETSA makes the grade in the USA because:

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BRINGS YOU THESE IMPROVED PRODUCTS

TRY WEAVE-WELL 740— an excellent product for use with new type starch converters—Easy to pump—Gives excellent results on the hardest weaves.

SYN-SIZE and **SYN-BIND** have gained rapid acceptance—Superior size for spun dacron and cotton blends.

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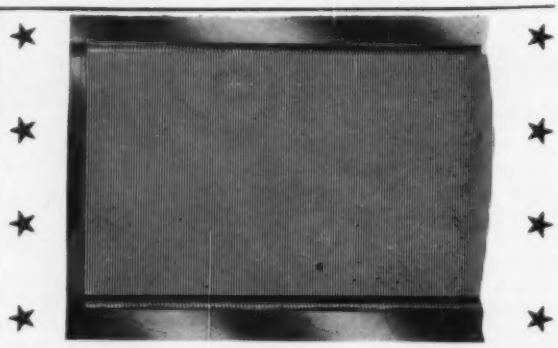

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FOR HIGH QUALITY CLOTH

Pioneer's new "Duraflex" construction reeds produce much better quality cloth than all metal reeds for two reasons: 1. There is no distortion in the dent wires; 2. There is no dent breakage.

Request a demonstration of this remarkable new development today!

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P. O. BOX 10586 ATLANTA, GA.

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extended accordingly.

The Selig Co., Inc., P. O. Box 1518, Atlanta 1, Ga.

Do you want more data? Write supplier or use card on page 121; list A-141

Speeds card calender roll threading

A new aid for high production carding is the Saco-Lowell Easy Threading Calender Rolls section which makes possible "end-around" piecing, thereby providing savings in time and labor and reducing waste.

Saco-Lowell Replacement Parts Division, Saco-Lowell Shops, Greenville, S. C.

Do you want more data? Write supplier or use card on page 121; list A-142

Yarn tension control performance improved

Tension disks with a high degree of optical flatness improve performance of the Lindly Electrotense electromagnetic tension device by supporting a more uniform speed of rotation of the top disk. A matte surface finish of about 55 RMS is selected for the medium and heavy disks; about 30 RMS for the 23-grain disk. Installation is simplified.

Lindly Div., Foster Machine Co., Westfield, Mass.

Do you want more data? Write supplier or use card on page 121; list A-143

Books

Four technical manuals on the subject of Raschel knitting have been published by the National Knitted Outerwear Association, 386 Park Ave. South, New York 16, N. Y. *Fundamentals of Raschel Knitting,* by A. Reisfeld, C. Rotenstein, D. F. Paling, and J. B. Lancashire, contains chapters on functioning of the machine, setting up and aligning it, care and maintenance, patterning potentialities, and how to make bulky rib fabrics on Raschel machines. *Control of Defects in Raschel Fabrics,* by A. Reisfeld of Gehring Textiles, Inc., includes chapters on machine adjustments, advantages of direct and indirect warping, how to avoid dropped stitches, how to overcome yarn loading, and how to avoid cutting and whiskering. *Manufacture of Raschel Wool and Cotton Outerwear,* by Charles Rotenstein, covers shirt fabrics, nets, plush and crepe fabrics, cut pile fabrics, two-needle bar cloth, Jacquard type fabrics. *Lace Manufacture on Raschel Machines* was also written by Mr. Rotenstein and deals with relation of lace structure to knitting elements, ground structures, designing, calculating cost and production data, and how to knit selvages and draw threads.

The 42nd edition of the *Handbook of Chemistry and Physics* contains over 3400 pages of data classified as follows: mathematical tables, properties and physical constants, general chemical tables, heat and hygrometry, and quantities and units. Publisher: The Chemical Rubber Co., Inc., Publications Div., 2310 Superior Ave., Cleveland 14, Ohio. Price, $12.00.

Up-to-date data on sources, production, properties, and uses of salt and brines are contained in American Chemical Society Monograph No. 145. Entitled *Sodium Chloride,* the 744-page cloth-bound book was edited by Dale W. Kaufmann who is chief chemical engineer of International Salt Co., Inc. Contributions of 19 specialists are contained in the 26 chapters of this work which has been published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. Price, $20.00.

The fourth edition of *Quality Control,* by N. L. Enrick, has two new chapters which explain the use of statistical evaluation of tolerances as an aid in establishing and maintaining realistic tolerance specifications. It also describes a new technique on process investigation and evaluation called evolutionary operation that will help the user to find the process settings which will yield optimum quality and productivity. Modern methods of statistical quality control are explained in simple terms and step- by-step examples. The Industrial Press, 93 Worth St., New York 13, N. Y. Price, $5.50.

Current data on all classes of textile fibers, both natural and manmade, in use throughout the world today are presented in the recently published second edition of the *Handbook of Textile Fibres,* by J. Gordon Cook of Imperial Chemical Industries Ltd. of England. Historical and economic background, methods of production or manufacture, structure and properties, and end-use characteristics are given for each fiber. Merrow Publishing Co., Ltd., 276 Hempstead Rd., Watford, Herts, England. Price, $4.50.

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FREE BOOKLETS

1-1 STEEL ROLLS—Booklet gives facts about steel rolls, including details of manufacture and a handy form for ordering. Saco-Lowell Shops, Replacement Parts Division, Greenville, S. C.

1-2 REED GRINDING & POLISHING—Brochure tells how to cut expenses with a reed grinding and polishing machine for regular maintenance. Edda International Corporation, 468 Fourth Avenue, New York 16, New York.

1-3 VERSA-MATIC DRAWING — Booklet completely describes the Versa-matic Drawing Frame, including principles of operation, sections and detailed photographs. Saco-Lowell Shops, Textile Machinery Division, Easley, South Carolina.

1-4 CRIMPER — Bulletin illustrates and describes Crimper for synthetic tow production, featuring easily changed stuffing box. Turbo Machine Company, Lansdale, Pennsylvania.

1-5 SPECIALTY BAGS — Complete information on Specialty Bags for use in tufted textiles and other textile operations. Bemis Bro. Bag Co., Textile Specialty Department, 408 Pine Street, St. Louis 2, Missouri.

1-6 CAST-TOOTH SPROCKETS — Booklet describes complete stock sizes of cast-tooth sprockets, whose teeth are ground to fit the chain. Request Book 2867, Link-Belt Company, Department PR, Prudential Plaza, Chicago 1, Illinois.

1-7 ALKYLPHENOL SURFACTANTS — Booklets presents information on the properties of the alkylphenoxy polyethoxy ethanol series of surface-active agents. Rohm & Haas Company, Washington Square, Philadelphia 5, Pennsylvania.

1-8 AIR CONDITIONING UNITS — Product bulletin describes new line, making it possible to select various component parts, without referring to a variety of bulletins. American Air Filter Company, 215 Central Avenue, Louisville 8, Kentucky.

1-9 RECORDERS, INDICATORS — Catalog highlights new modular design features, featuring the quick changing 2 to 24 point ElectroniK Universal Multipoint recorder. Minneapolis-Honeywell Regulator Company, Industrial Division, Wayne and Windrim Avenues, Philadelphia 44, Pennsylvania.

1-10 CARD DRIVE—Booklet describes compact card drive which has no clutches, jack shafts, gears, etc. Gunter and Cooke, Inc., 303 East Trinity Avenue, Durham, North Carolina.

1-11 OVERHEAD MATERIALS HANDLING—Booklet contains engineering and application data for those interested in overhead materials handling. Request Booklet No. 2008-Q, Cleveland Crane & Eng. Co., Cleveland Tramrail Division, 1036 East 289th Street, Wickliffe, Ohio.

1-12 VAT DYEING—Brochure is a comprehensive treatise on the latest vat-dyeing techniques for cellulosic fibers. Request Bulletin No. GDC-351T, General Dyestuff Company, 435 Hudson Street, New York 14, New York.

1-13 BOW SPREADER ROLL—The Aquatrol Expander, a new bow spreader roll, is the subject of a 4-page bulletin. Request Bulletin R-960, Rodney Hunt Machine Company, Industrial Roll Div., Orange, Massachusetts.

1-14 ROVING FRAME CLEANERS—Booklet describes traveling cleaners for creel areas, frame and overhead surfaces. Parks-Cramer Co., Fitchburg, Massachusetts.

1-15 FIBER FACTS—1961 edition of Fiber Facts includes expanded glossary, denier conversion tables, etc. American Viscose Corp., Public Relations Department, 1617 Pennsylvania Boulevard, Philadelphia 3, Pa.

1-16 HIGH-PRESSURE ACETYLENE DERIVATIVES—Booklet describes polymeric materials used to improve dye receptivity of synthetic fibers. Antara Chemicals, a Division of General Aniline & Film Corporation, 435 Hudson Street, New York 14, New York.

1-17 TESTS FOR JANITORS—Booklet includes tests to help supervisors find qualified janitorial workers. Puritan Chemical Co., 916-932 Ashby Street, N.W., Atlanta 18, Georgia.

1-18 BENCH SCALES—Booklet describes heavy duty bench scales for general purpose weighing. Request Bulletin 3415, Exact Weight Scale Company, 541 East Town Street, Columbus 15, Ohio.

1-19 STAINLESS STEEL—Booklet describes complete range of stainless steel fabrication provided by custom tailoring shop. Sims Metal Works, West Point, Georgia.

1-20 FABULITE APPLICATIONS — Booklet discusses roll covering for special and general applications, including typical applications as guider rolls, pad rolls, bleachery squeeze, etc. Stowe-Woodward, Product Service Department, Newton, Massachusetts.

1-21 POLYETHYLENE PACKAGING—Brochure describes one-operator poly packaging machine which makes any size bag up to 24", sealed on all sides. Sealaround Corporation, 2024 S. Wabash Ave., Chicago 16, Illinois.

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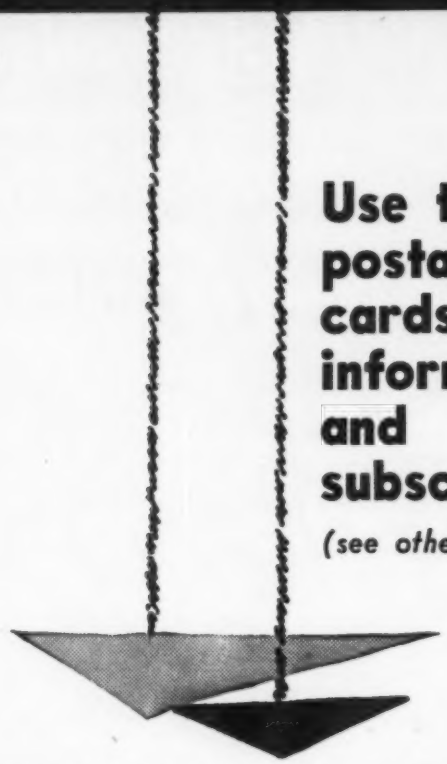

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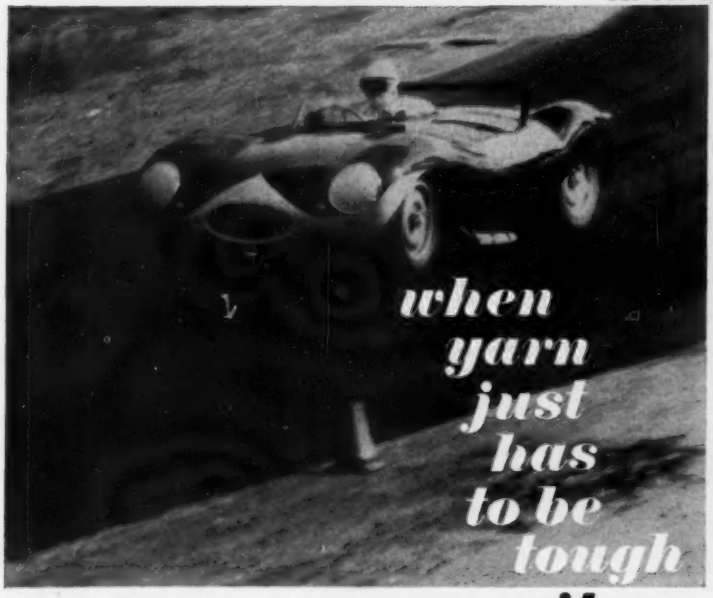

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T-323 **UNIFIL LOOM WINDER.** Describes new concept of filling preparation which needs no quilling area. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-324 **ALIGNING LAYS.** Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

T-325 **TRAVELING LOOM CLEANER.** Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

T-326 **DRAPER REPAIR PARTS CATALOG.** Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

T-328 **TEXTILE MACHINERY PARTS CATALOG.** Describes complete line of Dayco and Thorobred textile parts. Dayco Corp., Dayton, Ohio.

T-329 **COUNTING DEVICES.** Describes complete line of counters for every application. Trumeter Company, 38 W. 32nd St., New York 1, New York.

T-331 **STATIC BARS.** Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

T-332 **CARE OF DRAPER SHUTTLES.** Describes how longer, trouble-free service may be obtained. Draper Corporation, Hopedale, Mass.

T-346 **FACTS ON NONWOVENS.** Fact file on non-wovens tells of new machinery, new methods of handling fibers, new bonding agents, etc. Curlator Corporation, Textile Division, East Rochester, N. Y.

T-347 **New DRYING SYSTEM.** Describes high capacity, custom engineered drying equipment for tufted plants. Dalton Sheet Metal Co., Inc., Dalton, Ga.

T-351 **AUTOMATIC STOP MOTION.** Complete information available on automatic stop motion for Titan warp tying-in machine. Edda International Corp., 468 Fourth Ave., New York 16, N. Y.

T-353 **BACKING FOR TUFTEDS.** How to get your tufting necessities with one telephone call. Fulton Cotton Mills, P. O. Box 1726, Atlanta 1, Ga.

T-355 **NON-WOVEN FABRICS.** Booklet gives outline of nature and history of non-woven and the manufacturing techniques of today. Booklet 56-219A. Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-358 **LOOM SUPPLIES.** Information on rod lubricant and applicator, sponge leather bunter, picker. Garland Mfg. Co., 54 Water St., Saco, Me.

T-362 **SIZE THAT SATISFIES.** Information on getting the correct size package for your mill. Also on Bingham line of slasher rolls. Stodghill & Co., 716 Ponce de Leon Place, Atlanta, Georgia.

T-363 **RUBBER COVERED SLASHER ROLLS.** Handy booklet tells how to get longer life and better performance from rubber covered rolls. Includes data on handling storing and grinding. Stowe-Woodward, Inc., Dept C., 181 Oak St., Newton Upper Falls 64, Mass.

T-364 **CONTINUOUS STARCH COOKER.** Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in warp sizing and finishing. Clinton Corn Processing Company, Clinton, Iowa.

knitting

T-401 **SINGLEHEAD FULL - FASHIONED MACHINE.** Literature on request from the Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-403 **RASCHEL KNITTER.** Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 **NEEDLE OIL DOES NOT STAIN.** Details on "Gulftex 39" developed for knitting mills. Gulf Oil Corp., Gross & PRR, Pittsburg 30, Pa.

T-407 **KNITTING MACHINES.** Information on Wildman "TFS" 30" single section F-F machines and "AL" 30" diameter 32-feed "single purpose" circular interlock machine (rib type) Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-410 **"READING" TYPE 60 F-F KNITTING MACHINE.** Information about the new "Reading" Type 60, 38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

wet processing

T-500 **WEBB GUIDE SYSTEMS.** Folio No. EG-84 describes webb guide systems for cloth applications. G.P.E. CONTROLS, INC., 240 E. Ontario St., Chicago 11, Ill.

T-501 **TUBES FOR PACKAGE DYEING.** Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

T-502 **FINISHING MACHINERY.** Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

T-503 **WATER ANALYSIS.** Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-504 **UREA FORMALDEHYDE.** Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1. Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-506 **CATIONIC SURFACE ACTIVE AGENT.** Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-508 **PEROXIDE BLEACHING SYSTEM.** Illustrates and describes this continuous system. E. I. du Pont de Nemours & Co., Electrochemical Dept., Wilmington, Del.

T-510 **TEXTILE CHEMICALS.** Describes leading products for wet processors. Royce Chemical Co., Carlton Hill, N. J.

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T-516 **ALUMINUM CHELATE PEA-1.** Technical data sheet tells how aluminum Chelate PEA-1 may be used with advantage in many applications where aluminum in proplate is unsatisfactory. Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-517 **CHEMICAL CATALOG.** Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

T-519 **HYDRAULIC POWER UNITS.** Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

T-522 **CUT WATER TREATMENT COSTS.** Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

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T-528 **ETHANOLAMINES.** Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-531 **ROTARY DYEING MACHINE.** For use in dyeing hosiery, hats, gloves, socks, etc. Turbo Machine Co., Lansdale, Pa.

T-534 **DYEING AND FINISHING MACHINERY.** Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

T-535 **DYEING, BLEACHING AND DRYING EQUIPMENT.** Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

T-536 **NAPHTHOL RATIOS SLIDE CHART.** Quickly and accurately enables operators to determine Naphthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

T-540 **PENFORD FINISHING GUMS.** Complete data, including physical properties. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-541 **REGENERATION OF ZEOLITE WATER SOFTENERS.** Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

T-542 **DYEING SNYTHETIC FIBERS.** Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

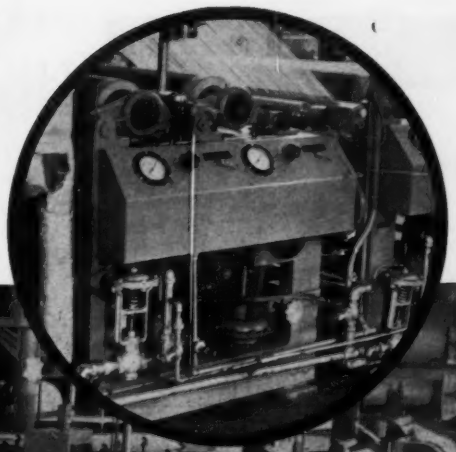
T-543 **INDUSTRIAL BRUSHES.** Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

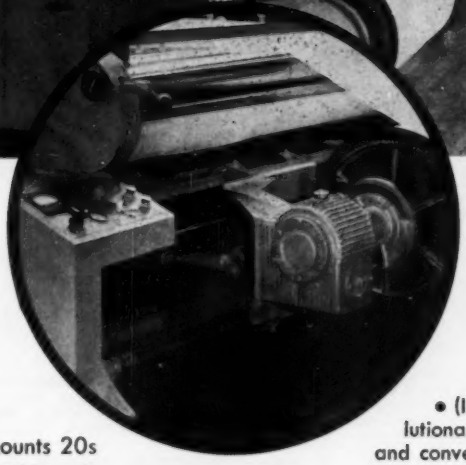
T-544 **WASTE HEAT RECOVERY.** Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

T-545 **WASHERS FOR SCOURING, BLEACHING, ACIDIFYING.** Describes high capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 **NAPHTHOL FOR LIGHTFAST BROWNS.** Booklet describes new, straight, non-substantive naphthol. Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

A Report on the DAN RIVER MILLS Cocker Slasher Installation





In 1959, Dan River Mills integrated their slasher operations as shown in the picture above. These four machines (2 GH and 2 1954 models) have replaced eight other slashers of varying types and ages.

These four Cocker Slashers easily carry a load of 2547 looms, running everything from prints to fancies and stripes—yarn counts 20s to 50s—and from 4700 ends 32/1 to 9540 ends 32/1.

Minimum Loom Beam Width
50 Inches

Maximum Loom Beam Width
107¾ Inches

Maximum Loom Beam Head Diameter
32 Inches

- Large picture shows modern Slasher Room at Dan River Mills, Inc.
- (above) Control panel on double size box gives quick direct readings. Air motors assure precise and even loading of top rolls.
- (left) This view shows the revolutionary Cocker Torque Tube Drive and convenient control panel.

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Dye Beams up to 150 ypm
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Top Operating Speed—150 ypm
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BOOKLETS

T-547 SOFTENER LUBRICANT, NAPPING AID. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-554 INSTRUMENT CATALOG. Complete information on industrial instrument accessories and supplies. Includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-556 HUNTER DYEING EQUIPMENT. Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles. Open Width Dye Kettles. Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

T-557 HIGH ACTIVITY CATALYST. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 CATIONIC DYE LEVELER. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-561 PUMP POURABLE PASTES. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 POLYETHYLENE FINISHING AGENT. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 HYDROGEN PEROXIDE BLEACHING. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 ETHYLEX GUMS. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151, Decatur, Ill.

T-572 DYEING MACHINERY FOR EVERY PURPOSE. Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-576 YARN PREPARATION. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 STAINLESS DRY CANS. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-579 AUTOMATIC GUIDING EQUIPMENT. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9815, Oklahoma City, Okla.

T-580 AIR SLASHER DRYER. Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-581 BUTT-TACKING SEWING MACHINE. Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 20 Laurel St., Hartford, Conn.

fibers and yarns

T-601 FORTISAN-36, NEW TEXTILE FIBER. Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

T-602 CAPROLAN NYLON HEAVY YARNS. Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

T-604 THE CHEMSTRAND NYLON STORY. Describes the birth and growth of Chemstrand Nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

T-605 COLOR-FAST FIBERS. Further information on "Coloray." Courtauld's solution dyed rayon staple which is a contribution to color fastness in fabrics. Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N. Y.

T-608 TASLAN TEXTURED YARNS. Technical information on dyeing and finishing of new fabrics made with Taslan. E. I. du Pont de Nemours & Co., Wilmington 98, Delaware.

T-609 PROCESSING NYLON STAPLE. Data sheet describes method of processing Du Pont 42 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

laboratory

T-701 TESTING INSTRUMENTS. Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.

T-703 SHADOGRAPH WEIGHING DEVICES. Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 STROBOTAC. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., West Concord, Mass.

T-706 YARN COUNT SCALE. Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

services for management

T-801 FACTORING SERVICE. Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-805 PROFIT THROUGH FACTORING. Brochure gives facts on the use of factoring as a modern plan for developing sound business growth and added profits. Walter E. Heller & Co., Dept. T1-2, 105 W. Adams St., Chicago 90, Ill.

T-807 GROUP INSURANCE. Information on how textile group insurance can insure the happiness of your employees and make for a better running mill. Provident Life and Accident Insurance Co., Group Dept., Chattanooga, Tenn.

T-808 FACTORING. Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-810 THE WONALANCET WAY is the title of an editorial booklet published five times a year dealing with current cotton problems. Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-812 BEECHCRAFTS FOR 1960. Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-819 ORGANIZED LUBRICATION PAYS. Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from Texaco, Inc., 135 E. 42nd St., New York 17, N. Y.

plant operation

T-902 BELT LACING EQUIPMENT. Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 "MOTOR SELECTOR." How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-904 GEARMOTORS, MOTORGEARS, AND FLUID DRIVES. Catalog supplies complete information on double, triple, and quadruple reduction gearmotors and motorgears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

T-907 WRAP UP LINT PROBLEMS. Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Fiter Co., 275 Central Ave., Louisville 8, Ky.

T-908 TEXTILE MOTORS. Bulletin describes complete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

T-909 COMPRESSORS. WB two-stage water-cooled. Space-saving units require modest foundation up to 125 psi and 1150 cfm displacement. Bulletin WB-10. Gardner-Denver Company, Quincy, Illinois.

T-910 MODERN LUBRICATION METHODS. A report to management tells how modern lubrication methods can help save thousands of dollars in three major economic areas of textile plant management. Describes twelve operating advantages of automatic lubrication systems. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Mo.

T-912 STORY OF NYLON BRISTLE. Tells of discovery and production, with special attention to "Tynex," a form of nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-913 "ONE-SHOT" LUBRICATORS. Bulletin describes wide field of application for one-shot lubricators on machines requiring closely controlled but infrequent oil feed. Bijur Lubricating Corporation, Rochelle Park, N. J.

T-914 INDUSTRIAL GREASES. Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

T-917 BLOWERS AND EXHAUSTERS Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

Air conditioning system designed by J. E. SIRRINE & CO., Greenville, North Carolina.
Installed by AMERICAN MOISTENING COMPANY, Charlotte, North Carolina.

Auto-AIRMAT Filters Protect Spinning Rooms At Highland Park Manufacturing Company

Lint and dirt meet a "solid wall" of AAF Auto-AIRMAT filters at Highland Park Manufacturing Company's Mill No. 1, Charlotte, N. C. These automatic, self-cleaning filters—cleaning 108,000 cfm of both outside intake air and re-circulated air to spinning rooms—are protecting the air washers on two air conditioning systems.

The Auto-AIRMAT is the *only* filter specially designed to remove lint fibers from the air and clean itself automatically! The Airmat media, installed in roll form at top of unit, becomes a moving filter curtain that is re-rolled at bottom with its lint load. Clean media is introduced automatically only in sufficient quantity to keep resistance at proper level. Disposal of collected lint is no problem—it's wrapped up in a handy roll.

For complete information, call your local AAF representative, or write direct for Bulletin 234. Address: Mr. Robert Moore, American Air Filter Company, Inc., 275 Central Avenue, Louisville, Kentucky.

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BOOKLETS

T-918 PAINT STRIPPING BOOKLET. Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

T-921 CATALOG OF NEEDLE BEARINGS. Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

T-924 BALL BEARINGS FOR TEXTILE MACHINERY. Bearings for all phases of textile processing. The Fafnir Bearing Co., New Britain, Conn.

T-925 LUBRICATION OF BEARINGS. Helpful list of do's and don't to prolong bearing life. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

T-931 NEW V-BELT DRIVES. Bulletin contains information on selection and operation of V-belt drives. Covers all types of V-belt drives. Dodge Mfg. Corp., Mishawaka, Ind.

T-932 SMOOTH ACCELERATION, DECELERATION. Describes eddy-current equipment for smooth, stepless acceleration and deceleration. Eaton Mfg. Co., 3307 14th Ave., Kenosha, Wis.

T-937 V-BELTS. Tells how raw materials and finished belts are tested and inspected. Quality control and experimental production covered. Booklet 5-51107, Dept. 794, Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-938 EMERGENCY CHEMICAL CLEANING—Booklet tells how rust, scale and other deposits may be removed from heat exchange equipment, regardless of intricacy. Anderson Chemical Co., Inc., Box 1424, Macon, Georgia.

T-939 BOILER FEEDWATER TREATMENT. Bulletin describes BRAXON & FLAKO internal automatic boiler feedwater treatment and services of trained service engineers in eliminating the problems of scales, sludge, corrosion, etc. Anderson Chemical Co., Inc., P. O. Box 1424, Macon, Ga.

T-940 VARI-SPEED MOTOR PULLEY. Describes variable speed control through use of simplified three-major-part disc-assemblies with only one lubrication point. Reeves Pulley Co., Reliance Electric & Engineering Co., Columbus, Ind.

T-941 BALING PRESSES. Describes complete line of motor-driven and hydraulic baling presses. Logemann Brothers Co., 3150 West Burleigh St., Milwaukee, Wis.

materials handling

T-1005 TRAMRAIL ENGINEERING AND APPLICATION. Data on how Tramrail equipment can cut handling costs. Cleveland Tramrail Div., Cleveland Crane and Engineering Co., 1036 East 289th St., Wickliffe, Ohio.

T-1007 MATERIALS HANDLING FOR TEXTILES. Shows how fibre trucks can increase efficiency, protect products. National Vulcanized Fibre Co., Wilmington 99, Del.

T-1013 TRUCKS DOFF, STORE, BECOME SPOOLER TRAY. Brochure tells how mobile boxes are being used as doff boxes, storage boxes, and spooler trays on Barber-Colman spooler. Fisher Mfg. Co., Hartwell, Ga.

T-1014 CARPET CORES, STORAGE TUBES. Literature on simplified storage and better cores for rugs. Sonoco Products Co., Hartsville, S. C.

T-1015 OVERHEAD CONVEYOR. Catalog features "Cable-Way" Overhead Conveyor which has low-cost, ease of installation, quiet operation and long life. Conveyor Division, The American MonoRail Co., Fourth and Franklin Sts., Tipp City, Ohio.

T-1020 AUTOMATIC WRAPPING. Tells how automatic packaging increases the sales appeal of textile products. Saves labor and materials and adds tamper-proof product protection. Write Hayssen Mfg. Co., Sheboygan, Wis.

T-1021 TUBES, BOBBINS, PIRNS. Information on world renowned yarn carriers, reliable as to stability, dimensions, weight. Emil Adolff (U. S. A. agents: Textube Corp., 695 Summer St., Stamford, Conn.)

T-1022 STRONG CORES. Data on lightweight, quality tubes and cores for textiles. Star Paper Tube, Inc., Rock Hill, S. C.

T-1023 MATERIALS HANDLING. Describes lightweight, durable, smooth products. Spaulding Fibre Co., Inc., Dover, New Hampshire.

T-1024 CONDITIONING TRUCK. Details on all-aluminum, non-rusting conditioning truck. Excel, Inc., Lincolnton, N. C.

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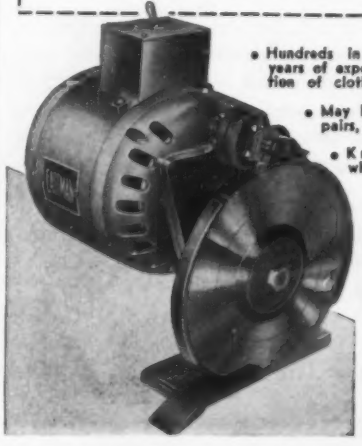

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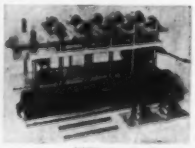

Pilling

For further information use Handy Return Card, Page 121

Window replacement *(from page 51)*

Note glass-block-filled bays in these recent exterior views of the two plants. No. 1 (left photo) was built in 1899; No. 2 in 1923.

a non-glare blue paint to regulate light and heat. "Besides cheapening the appearance of the buildings, this added extra maintenance expense," Mr. Cobb says.

The blocks also shut out drafts, dust, and noise and provide better light diffusion. The rigidity of the glass blocks has made the walls sounder structurally than they were before the installation was made, Mr. Cobb notes. This was particularly true in Building No. 1, built in 1899. In at least one wall, part of the supporting structure had to be re-mortared before the blocks could be installed.

"We believe the blocks have added to the future life of the building," says Mr. Cobb, "because we now have solid walls, unbroken by non-supporting windows. In addition, where condensation used to form on the windows and sills, moisture now is removed through drain pipes installed in the concrete sills."

Three Kinds of Blocks Are Used. Eight-inch "Suntrol Essex" blocks, which diffuse light throughout the interior, are installed from the floor to eye level. Above eye level, "Suntrol Prism" blocks, which direct light toward the ceiling, are used. Each bay requires approximately 92 blocks. Clear glass blocks, from four to nine per bay, are set at eye level to give unobstructed view to the outside.

No Downtime for Installation. Despite the far-reaching nature of the company's window replacement program, it has cost no downtime at either plant. During the process, bays are screened off with canvas stretched on wooden frames. This reduces noise and holds moisture and heat in the plant, while at the same time preventing dust and debris from entering the working area.

Only one problem has been encountered. It was found that bays in the weave room could not be blocked up completely, one at a time, because the steady vibration of the machinery shook down the mortar in the upper layers of block before it could set.

The solution was to lay one row of blocks across eight or ten bays. By the time the first layer had been placed in the last bay, the mortar had sufficiently hardened in the first bay, and workmen could go ahead with a second row.

SHORTS & REMNANTS

(from page 14)

F-F Will Return

"Your October 1960 issue carried an article entitled 'Full-Fashioned Hosiery Will Return.' This article is well written and very informative and should get more publicity.

"Would it be possible to suggest to Contributor No. 1260 to send it to the *Reader's Digest* or some similar consumer publication for publication so that more people can read it?"

GERHARD ROSCHER
Pres.
Millbrook Knitting Co., Inc.
Washington, N. J.

New Use for Old Mills

We saw in *Connecticut Life* recently that federal agents and state troopers had seized a $50,000 still in the vacant Aspinook Mills building at Moosup, Conn. They arrested two Rhode Island men in what was called the biggest bootleg pinch since Prohibition. The still held 10,000 gallons of mash. Probably more profitable than the textile business—at least for a while.

► Miss Indian American, Navajo Linda Arviso of Gallup, N. M., admitted that the blanket she wears was made by Pendleton (Ore.) Woolen Mills. "It's easier to buy them than to weave them," she said.

Tokyo Twist

We read in the *Wall Street Journal* the other day that a Tokyo doll maker has entered suit against F. W. Woolworth Co. and some U. S. manufacturers, charging the defendants with producing and selling "imitation" Japanese dolls "of inferior quality, character and workmanship."

"Neither Snow Nor Rain . . ."

Here's the way a letter we received recently was addressed:

And we got it just three days after

SHORTS & REMNANTS

(from page 129)

it was postmarked in Milan! This caused us to be a little more charitable about the letter we received not so long ago, six weeks after it was postmarked in Boston.

And speaking of envelopes, here's one that came in the mail last week from India. The gentleman who wrote it—I. R. Bijapurwala, a spinning instructor in Bhavnagar—obviously has the soul of an artist.

Supernumerary

A retired mill man of our acquaintance told of a conversation that he had with his former boss when he chanced to meet him while strolling along the streets of the town where he lives.

Our friend asked his former employer if he had found a replacement.

"As soon as we find out what you were doing," came the reply, "we'll start looking."

► We had a request the other day for a copy of our "Textile Mill Flow Chart" from the Pacific Telephone Co., of Los Angeles. Can this mean that the cotton mill Angelenos have been dreaming about is at last to become a reality, and the telephone company wants to know where to put the phones?

► Getting back again to envelopes, we had one a couple of days after the election, from a textile association, addressed to "Senator George Dockray." We were grateful for the write-in, but we're afraid that the election really did cause some confusion in that association's offices!

Faller-Bar Supplier

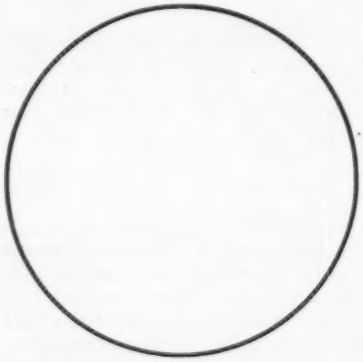
In our November and December issues we published a couple of articles about repinning faller bars on intersecting draw frames. The November installment listed sources of supply for repinning equipment. Now we have a letter from Lenkotex Co., Inc., New York City, advising us that they too are prepared to supply pins and plastic pin strips for repairing these faller bars. We're glad to make this addendum.

► Returning once again to the mail—three of our postage-free reply cards came in recently, asking for more information on some items we published. We'd be glad to oblige, but the inquirers forgot to list their names and addresses. One card was postmarked at Pen Argyl, Pa., another at Drummondville, P. Q., and the third at Pensacola, Fla. Since the postmaster won't deliver mail addressed "To Whom It May Concern," we're stymied.

► A book which is currently more-or-less on the best-seller list is "The Nylon Pirates," by Nicholas Monsarrat (who wrote "The Cruel Sea"). We chanced to mention this to a millman friend of ours, who said, "Sounds as though it's the inside story of synthetics converting." We thought it was about hijackers, or the switch from full-fashioned to seamless. Turns out it's about confidence men on a luxury cruise ship.

S & R Puzzle Department

What with Japanese imports, rising wages, etc., S & R wants to do his best to keep textile minds sharp. So here is the puzzle for this month, selected from the *Ryerson Steel Pictorial*:



The problem is to divide the circle into eleven sections, using only four straight lines. We'll send you the solution on request.

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PERSONAL NOTES

Frank C. Tucker, formerly manager of Hudson Hosiery Co., has been named to head a new quality control, research and development department at company headquarters in Charlotte, N. C.

Charles M. Harrell has been appointed controller of The Bachmann Uxbridge Worsted Co., division of Indian Head Mills, Inc.

C. E. Hafford has been elected president and chief executive officer of Glenoit Mills, Inc., a division of Botany Industries, Inc.

Colon W. York, vice-president and controller of Peerless Woolen Mills, a division of Burlington Industries, Inc., has been named general manager of Peerless Textiles, Cleveland, Tenn. • • • **R. F. Daugherty** has been named superintendent of Ranlo Mfg. Co., succeeding **George Jubrias,** who has been transferred to the Valley Falls (R. I.) plant. • • • **J. M. Grantham** has been promoted to superintendent of the Flint mill.

Jacques E. Staelen has been appointed assistant general manager and treasurer of Masurel Mills, Inc., Woonsocket, R. I.

Robert D. Bickford has been placed in charge of development work for Caron Spinning Co. plants in Rochelle, Ill., Robesonia, Pa., and the Netherlands. • • • **Benjamin J. Zintak, Jr.,** has been elected president of the company.

Leon Lowenstein, executive chairman of the board of directors of M. Lowenstein & Son, Inc., recently received the tenth annual award of the textile section of the New York Board of Trade as the year's outstanding man in the industry. • • • **Grady S. Brooks** has been named personnel director of Lyman Printing & Finishing Co., and Wamsutta Mills divisions at Lyman, S. C., and

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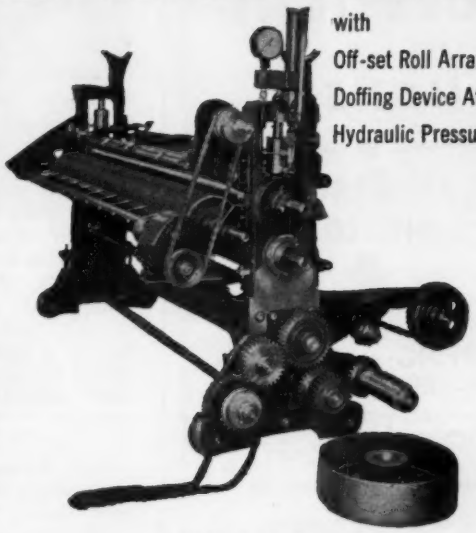

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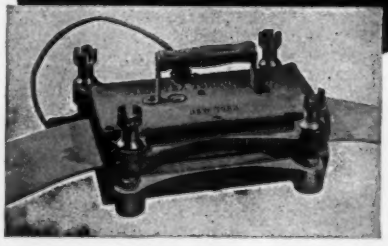

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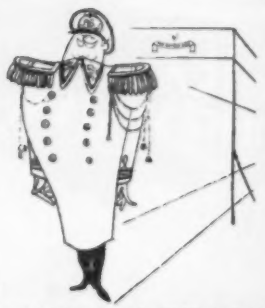

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PERSONAL NOTES

(from page 130)

J. Wiley Teasley has been promoted to assistant to Mr. Brooks. • • • **Joseph J. Lyons,** president of the cotton division, has been named "man of the year" by the Chamber of Commerce in Anderson, S. C.

Mrs. Elsie M. Murphy, formerly president, general manager, and director of S. Stroock & Co., Inc., Newburgh, N. Y., has resigned. Mrs. Murphy has been elected president of Old Bennington Weavers, Inc., and **X. J. Doneland,** formerly assistant to the president at Stroock, has been elected executive vice-president.

C. E. Anderson, formerly manager of Excelsior Mills, Union, S. C., has been named plant manager of the Lockhart (S. C.) mill. **S. J. Craig, Jr.,** has assumed Mr. Anderson's former duties at Union, S. C.

Jean W. Schenck, president of Lily Mills Co., Shelby, N. C., has been elected to the board of directors of Belding Heminway Co.

D. Willis McClain, cotton buyer for the Appleton plant of J. P. Stevens & Co., Inc., has retired. • • • **Albert S. Hartsell,** formerly general superintendent, has been named manager of the Industrial plant.

Albert V. Morrell has been promoted to manager of the fabric division of Hellwig Dyeing Corp., Philadelphia, Pa. Mr. Morrell was formerly superintendent of fabric dyeing and plant production.

Charles C. Sedgwick, Charles Saimond, and **William LaNore** have been promoted to technical consultants in the process of felt weaving at Albany (N. Y.) Felt Co.

James G. Cannon, vice-president, secretary and treasurer of Southeastern Facots, Inc., has been named director of Chadbourn Gotham, Inc.

Joseph Machnik, formerly manager of the Carolina Jacquard Knitting Mills, has joined Ted A. Podbereski & Associates as senior engineer and associate.

H. William Close, president and general manager of The Springs Cotton Mills, **William J. Erwin,** president of Dan River Mills, Inc., and **James C. Self, Jr.,** president of Greenwood Cotton Mills, have been elected to the board of trustees of the J. E. Sirrine Textile Foundation, an organization which supports textile education in South Carolina, principally through support of the School of Textiles at Clemson College.

Richard E. Donner, executive vice-president of Dyersburg Cotton Products, Inc., has been named president of the firm. Mr. Donner succeeds **R. H. Wheeler,** who has been elected chairman of the board of directors. Other officers elected were: vice-president and treasurer, **B. R. Jernigan;** vice-president and secretary—**J. G. Pelham;** vice-president in charge of production, **Robert Cloar;**

Lawrence R. Brumby (right), vice-president of Bibb Manufacturing Co., Macon, Ga., received the "Service Award" from Georgia Institute of Technology president, **Dr. Edwin D. Harrison,** during the recent annual meeting of the Textile Education Foundation, Inc. Mr. Brumby, in his 13 years as head of the organization's machinery and equipment committee, has supervised and negotiated the purchase of more than $500,000 worth of manufacturing and laboratory facilities for the A. French Textile School.

For further information use Handy Return Card, Page 121

vice-president in charge of research —**B. F. Smith;** assistant treasurer—**Ward Browning. W. L. Shipman,** plant engineer, was named to the board of directors.

James D. Grealish has been elected president of Andover Knitting Mills, New Ipswich, N. H.

H. Grady Callahan has been promoted to overseer of cloth room, warehouse, and yard at the Unity plant of Callaway Mills Co. **W. Joe Keeble** has been advanced to overseer of supply room, waste and odd yarn department. * * * **Charles E. Browne** has been promoted to assistant overseer, sewing and coating at the Calumet plant. * * * **Katherine Glass,** technical librarian of the research and development division, has been named to the most recent edition of Who's Who of American Women.

Hansford Sams, Jr., assistant president of Scottdale (Ga.) Mills, was recently elected president of the Textile Education Foundation, Inc. Mr. Sams succeeds R. Houston Jewell, vice-president of Crystal Springs Bleachery. **James A. Byars,** manager of the Eagle & Phenix division of Reeves Brothers, Inc., Columbus, Ga., was elected treasurer. * * * **Charles Broadwell,** personnel director of Bibb Mfg. Co., Columbus, Ga., received the "Outstanding Instructor" award for his work in teaching "Supervision and Human Relations."

Rogers L. Johnson has been named associate research director of the American Thread Co., Inc. * * * **Rex Fairchild** has been appointed assistant superintendent of finishing at the Willimantic, Conn., operation. * * * **Charles T. Cooper,** formerly assistant superintendent of the Dalton, Ga., mill, has been transferred to the Tallapoosa, Ga., mill in the same capacity.

At the annual meeting of the Woolens and Worsteds of America, Inc., held in New York City recently, **George A. Ott** was elected president. Other officers elected are: executive vice-president — **Fenwick Shepperd;** vice-presidents—**G. Norman Winder, William I. Kent,** and **Ronald A. Mitchell.**

Ernest J. Chornyei has been elected to the position of president and chief executive officer of the Bradford Dyeing Association, U. S. A. Mr. Chornyei succeeds **James A. Stevenson** who has been elected chairman

Mr. Byars
Reeves Bros.

Mr. Sams
Scottdale Mills

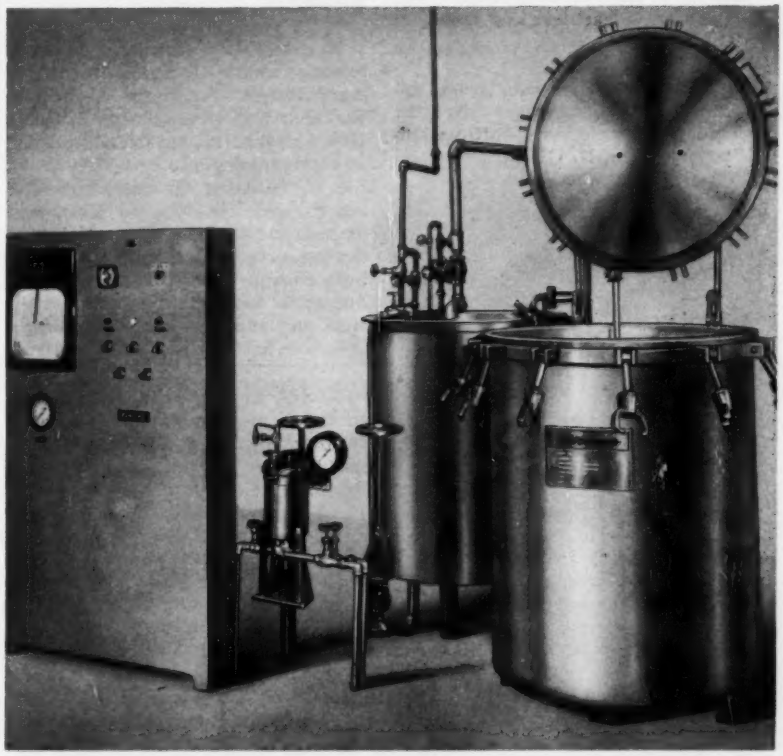
Mr. Cooper
American Thread

Mr. Fairchild
American Thread

of the board of directors.

At the annual fall meeting of the Carolina Yarn Association held in Lexington, N. C., recently, **James Rogers** was named president. Other officers elected were: vice-president —**E. Warring Best;** secretary—**Paul Thompson;** treasurer—**L. B. Allen;** executive secretary—**Frank P. Barrie.**

At a meeting of the directors re-



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PERSONAL NOTES

(from page 133)

cently, **Dr. George van der Wath** was elected chairman of The Wool Bureau, Inc. Dr. van der Wath, who is also chairman of the South African Wool Board, succeeds Dr. J. H. Moolman, who has resigned.

Joseph W. Thatcher has been promoted to manager of the spinning division of Standard-Coosa-Thatcher Co. * * * **Robert A. Greene** has been named superintendent of the Thatcher plant. * * * **Charles Voss** has been promoted to superintendent of the Standard plant. * * * **John Lancaster** has been named assistant superintendent of the National facility and the dyeing, bleaching, and finishing plant.

Marvin E. Lance has been appointed export manager for the Duplan Corp., with offices in Winston-Salem, N. C.

Mr. Lance
Duplan

Mr. Roberts
Cone

Geoffrey D. Roberts has joined Cone Mills Corp. as superintendent of the Proximity Print Works plant. Mr. Roberts succeeds George Brandt, who has resigned. * * * **Jacques Schloss** has accepted the position of assistant to the president. Mr. Schloss was formerly president of Sunspun Mfg. Co., and vice-president in charge of sales for Suwanne Carpets, Inc.

Mr. Morris
Fieldcrest

Mr. McKew
Goodyear

Mr. Thatcher
Standard-Coosa

Mr. Greene
Standard-Coosa

Henry F. Morris has been named manager of the Karastan Spinning division of Fieldcrest Mills, Inc., Greenville, N. C. Mr. Morris will be in charge of all manufacturing operations.

W. Norbert Berard, research scientist at the U. S. Department of Agriculture's Southern Utilization Research and Development Division, New Orleans, La., has been appointed to represent the Southern division at the U. S. Army Quartermaster Research and Development Command at Natick, Mass. Mr. Berard will conduct a program of cotton research, both chemical and mechanical, in cooperation with Quartermaster scientists, on the application of textile research to military uses.

George E. Zeigler has been promoted to assistant to the director of manufacturing for the textile division of The Kendall Co. **Joseph A. Mix,** formerly purchasing manager of the Seneca, S. C., plant, has been named to succeed Mr. Zeigler as purchasing manager of the textile division. * * * **Robert Booth** has been appointed director of manufacturing.

Durwell Vetter, formerly treasurer of the now defunct Vetter & Williams, Inc., has joined the wool buying staff of National Worsted Mills, Jamestown, N. Y.

H. A. McKew has assumed the duties as superintendent of the Cartersville, Ga., plant of The Goodyear Tire and Rubber Co., succeeding **W. E. Floyd,** who has retired.

OBITUARIES

Gregory Ferenbach, 59, chairman of the board of Leon-Ferenbach, Inc., New York, N. Y.

Allen Stanley Bedell, 71, chairman of the board of J. E. Sirrine & Co., Greenville, S. C.

Edward V. Hess, Sr., 79, retired superintendent of the Continental Mills, Inc., Philadelphia, Pa.

H. Frank Hunsucker, 80, chairman of the board of Highland Cotton Mills, Inc., High Point, N. C.

W. Long, 65, of Long Spindle & Machine Co., and Ropat Textile Wood Products, Gastonia, N. C.

John J. Shaughnessy, 66, president and treasurer of Shaughnessy Corp., Buffalo, N. Y.

Fernando Casablancas, 86, inventor of Casablancas drafting system, Barcelona, Spain.

Henry A. Wells, 49, assistant district manager of the color and chemicals division of Interchemical Corp., Hawthorne, N. J.

Walter Larkin, 88, inventor of the Fidelity "400" seamless hosiery machine, Singer-Fidelity, Inc., Philadelphia, Pa.

Joseph De Marco, 79, president of Shelton Hosiery Mill, Shelton, Conn.

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MILL NOTES

An addition to the finishing plant which will house the ager room and the extension to the color shop is nearing completion at the Ware Shoals, S. C., division of **Riegel Textile Corp.**

Carolina Mills, Inc., recently installed an additional 100 44-inch shuttless looms in the weaving plant at Newton, N. C.

Burlington Industries, Inc., has formed a new company for the men's and children's hosiery manufacturing and sales operation to be known as **Burlington-Balfour Mills.** Manufacturing headquarters will be in Asheboro, N. C.

Owenby Manufacturing Corp. of North Carolina, a new division of Owenby Mfg. Co. of Marietta, Ga., has purchased a textile plant at Andrews, N. C., for the production of surgical dressings and other products for Johnson & Johnson.

Judson Mills, a division of Cotwool Mfg. Corp., has begun an 18-month beautification program which will include disposition of houses, improved parking facilities, landscaping, and better roads to the mill.

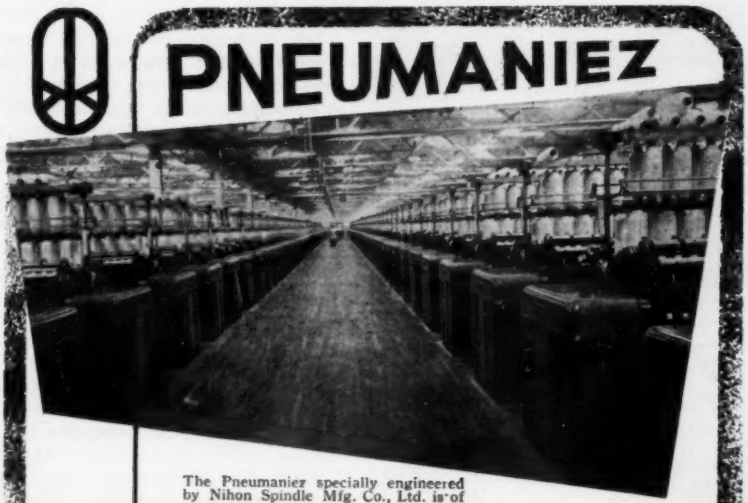
A modernization program which includes construction of a two-story plant addition, relocation of machinery, and installation of 26 new spinning frames is nearing completion at Wellington Mill, Anderson, S. C., a division of **West Point Mfg. Co.** • • • The $2½-million fine goods operation being installed at the Shawmut, Ala., division is nearing completion and full production is expected by February 1.

Avondale Mills announced in the recently published annual report a two-year modernization program to include air-conditioning for the Catherine mill where only carded knitting sales yarn will be produced. The looms will be moved to the Pell City plant which will be converted from blue denim to grey goods production. Additional looms and other equipment will be installed in the Eva Jane mill, which will permit the plant to continue its present production and also make the denim now being made at Pell City. Seventy-two box looms will be added in the Birmingham plant. The Sycamore facility will be completely equipped with ball-bearing spindles and large spinning rings. $8.5 million have been budgeted for these capital improvements. Commenting on future prospects, President J. Craig Smith said, "We have begun our new year with unfilled orders of 20,221,000 pounds, a decrease of 17 per cent from the beginning of the year covered by this report."

Carolina Elastic Corp., Mount Airy, N. C., has announced the completion of a $25,000 building and plans to double production within the next few months. New machinery is being installed and the entire expansion program will be completed in early 1961.

L. Erwin Rudisill has leased the building formerly occupied by Casar

PNEUMANIEZ



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MILL NOTES

(from page 135)

(N. C.) Mfg. Co. Plans call for the production of coarse carded yarns and employment of about 15 to 20 persons.

One phase of the $750,000 expansion program at **Henderson Cotton Mills, Inc.,** which called for a second floor to the present plant, has been completed. Some new equipment is in operation and other machinery is being received and installed.

Wiscassett Mills Co., Albemarle, N. C., recently awarded a contract for a new dyeing plant. The new facility which is scheduled for completion the latter part of July, 1961, will house the operations now carried on in the yarn dyeing department.

Beaverlown (Pa.) Weaving Mills, an affiliate of Kildare Fabrics Corp., and Candy Textile Co., has announced plans for a 53,000 sq ft addition which will increase the plant's weaving capacity. The expansion will represent an investment of approximately $600,000.

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SUPPLIER NOTES

Arthur C. Waldron has been appointed New England district sales representative for **Virginia Smelting Co.**

The Hopewell, Va., facility of **The Firestone Tire & Rubber Co.** is now producing both monofilament and multifilament nylon yarns for use in tire cord.

George H. Burns, formerly Philadelphia district manager, has been named sales manager for the Middle Atlantic states for **Clinton Corn Processing Co.**

The Burdette Manufacturing Co. is the new name of the former **Bennett Rose Co.**

The Wisconsin division of **Stowe-Woodward, Inc.,** has been enlarged with the opening of a new 32,300 sq ft manufacturing plant in Neenah. This is the third company facility to offer suction press roll covering service to the trade.

The Chattanooga, Tenn., district sales office of **American Enka Corp.** has been closed. The move is a part of the company's plan of centralizing activities at Enka, N. C.

William L. Lyons has been appointed California sales representative for the chemical and dyestuffs division of **Koppers Company, Inc.**

John E. Hargreaves has been named president of **Scott Testers (Southern), Inc.,** succeeding the late James M. Scott.

Fred J. Ebeling has been named director of sales for **Dodge Manufacturing Corp.,** succeeding Harry A. Torson, vice-president in charge of sales, who has retired.

The new multi-million dollar textile yarns manufacturing plant located in Aiken, S. C., has been put into initial operations by **Owens-Corning Fiberglas Corp.** Richard MacPherson is plant manager.

The new plant of **Mount Hope Machinery Co.,** located in Charlotte, N. C., will manufacture the company line of weft straightening equipment. In addition to manufacturing, a complete service section will be headed by Robert H. Winchester.

Earle S. Ebers has been designated group vice-president in charge of the polymer, fiber, and chemical operations of **United States Rubber Co.**

Acetic acid, formaldehyde, sodium acetate, and other chemical intermediates produced by **Celanese Corp. of America,** will no longer be distributed throughout the southeastern area through F. H. Ross & Co. The intermediates will be marketed directly by Celanese from its terminal facilities at Rock Hill, S. C., and through established distributors, including: Ivey Chemical Co., General Chemical Co., Axton-Cross Co., and Southern States Chemical Co.

J. Raymond Nisbet, formerly associated with Geigy Chemical Corp., has joined **Putnam Chemical Corp.** as sales coordinator. In his position, Mr. Nisbet will act essentially in a liaison capacity between the technical and sales departments.

John K. Gill has been named to service accounts in Florida, Georgia, and Alabama for **The Service Recorder Co.**

A lease-purchase plan for textile machinery has been announced by **H. W. Butterworth & Sons Co.** Under the leasing arrangement, a textile manufacturer will pay a percentage of the equipment cost monthly for three to five years. Upon expiration of the lease, mills can exercise a purchase option for 6 per cent of the original equipment cost, or renew the lease at a rental rate of 2 per cent of the original investment annually.

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Arthur L. Giles, Jr., has been appointed field sales engineer of the Philadelphia territory for **T. B. Wood's Sons Co.**

Hercules Powder Co. has announced the appointment of **Polymer Industries** as a sales agent for CMC warp size.

Comerio Ercole of Italy has announced that Jorge Conte, 139 N. Alexandria Ave., Los Angeles, Calif., has been appointed as agent in the United States for their automatic screen printing machines.

Richard E. Nickerson has been appointed manager of the textile dyes section of the Dyes and Chemicals division of **E. I. du Pont de Nemours & Co., Inc.,** succeeding Harold L. Sager who has been named assistant manager of the New England district sales office.

Q. Stanley Halliday, Jr., has joined the **Dixon Corp.** as sales engineer for the South Carolina territory. * * * The firm has announced completion of plans to sell, service, and engineer its drafting changeover products through direct factory-trained engineers with headquarters in Charlotte, N. C. Edward Cranshaw is sales manager and directly responsible for all sales and service.

Robert F. Romasco has been appointed service control manager for **Whitin Machine Works.** * * * The firm has announced the sale of 96 spinning frames to J. P. Stevens & Co. for installation in the Whitmire (S. C.) plant. * * * An order has been received for 6 Even-Draft drawing frames from Bates Mfg. Co. for the Edwards Division with delivery scheduled in late 1961. * * * Sheble & Wood Yarn Corp. has ordered 12 spinning frames.

Sonoco Products Co. recently dedicated its new research laboratories building in memory of Dr. James Edward Mills, the firm's first chief chemist and research director. Included in the new building are ten laboratories, each with a variety of equipment for more extensive experimentation and research, also a paper pilot plant and a textile constant temperature control room. * * * Members and associate members of the Textile Packaging Committee, composed of business representatives from leading textile mills, toured the facilities of the firm during their

Mr. Halliday
Dixon Corp.

Mr. Romasco
Whitin

recent meeting. C. H. Campbell, Jr., resident sales manager, Atlanta branch, discussed new and better packaging methods used by Sonoco.

Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co., has opened a new dye sales office in Providence, R. I. The office, located

C. F. Getsinger
Eastman Chem.

at 888 Broadway, will serve dyers and finishers of synthetic textiles in New England and upper New York state. C. F. Getsinger is in charge.

Thomas F. McHugh has joined **Roberts Company** as sales engineer for the northeast and Canadian area.

George Pounder has been appointed advertising manager of **Coats & Clark, Inc.**

Plans for expansion of chlorine-caustic soda facilities at Moundsville, W. Virginia, have been announced by Solvay Process Division of **Allied Chemical Corp.** Completion is scheduled in 1961.

A. J. Gerrard & Co. has moved into their new quarters at 400 East Touhy Ave., Des Plaines, Ill.

The executive offices of **Berkshire Color & Chemical Co.,** have been moved to County Trust Building, 663 Main Ave., Passaic, N. J. The research laboratories, originally at Clifton, has become part of the manufacturing facilities at Reading, Pa.

General Dispersions, Inc., has moved into its new plant at 55 La France Ave., Bloomfield, New Jersey.

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